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Merrimack Pharmaceuticals, Inc. Index to consolidated financial statements

As filed with the Securities and Exchange Commission on July 8, 2011

Registration No. 333-

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-1
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

MERRIMACK PHARMACEUTICALS, INC.
(Exact name of registrant as specified in its charter)

Delaware	**2834**	**04-3210530**
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification Number)

One Kendall Square, Suite B7201
Cambridge, MA 02139
(617) 441-1000
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Robert J. Mulroy
President and Chief Executive Officer
Merrimack Pharmaceuticals, Inc.
One Kendall Square, Suite B7201
Cambridge, Massachusetts 02139
(617) 441-1000
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

David E. Redlick, Esq. **Brian A. Johnson, Esq.** **Wilmer Cutler Pickering Hale and Dorr LLP** **60 State Street** **Boston, Massachusetts 02109** **(617) 526-6000**	**Jeffrey A. Munsie, Esq.** **Corporate Counsel** **Merrimack Pharmaceuticals, Inc.** **One Kendall Square, Suite B7201** **Cambridge, Massachusetts 02139** **(617) 441-1000**	**Richard Truesdell, Jr., Esq.** **Davis Polk & Wardwell LLP** **450 Lexington Avenue** **New York, New York 10017** **(212) 450-4000**

Approximate date of commencement of proposed sale to public: As soon as practicable after this Registration Statement is declared effective.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box. o

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer o	Accelerated filer o	Non-accelerated filer ☒ (Do not check if a smaller reporting company)	Smaller reporting company o

CALCULATION OF REGISTRATION FEE

Title of each class of securities to be registered	Proposed maximum aggregate offering price(1)	Amount of registration fee(2)
Common Stock, $0.01 par value per share	$172,500,000	$20,028

(1) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(o) under the Securities Act of 1933, as amended.
(2) Calculated pursuant to Rule 457(o) based on an estimate of the proposed maximum aggregate offering price.

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the Registration Statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

Subject to completion, dated July 8, 2011

Prospectus

shares

Common stock

This is an initial public offering of common stock by Merrimack Pharmaceuticals, Inc. Merrimack is selling shar es of common stock. The estimated initial public offering price is between $ and $ per share.

Prior to this offering, there has been no public market for our common stock. We are applying for listing of our common stock on The NASDAQ Global Market under the symbol "MACK."

	Per share	Total
Initial public offering price	$	$
Underwriting discounts and commissions	$	$
Proceeds to Merrimack, before expenses	$	$

We have granted the underwriters an option for a period of 30 days to purchase up to additional shares of common stock.

Investing in our common stock involves a high degree of risk. See "Risk factors" beginning on page 12.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed on the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

The underwriters expect to deliver the shares of common stock to investors on or about , 2011.

J.P. Morgan

BofA Merrill Lynch

Cowen and Company **Oppenheimer & Co.**

, 2011

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We have not authorized anyone to provide you with information other than that contained in this prospectus or in any free writing prospectus prepared by or on behalf of us or to which we have referred you. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give to you. We are offering to sell, and seeking offers to buy, shares of our common stock only in jurisdictions where offers and sales are permitted. The information contained in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of this prospectus or any sale of our common stock. Our business, financial conditions, results of operations and prospects may have changed since that date.

No action is being taken in any jurisdiction outside the United States to permit a public offering of our common stock or possession or distribution of this prospectus in that jurisdiction. Persons who come into possession of this prospectus in jurisdictions outside the United States are required to inform themselves about and to observe any restrictions as to this offering and the distribution of this prospectus applicable to that jurisdiction.

Prospectus summary

This summary highlights information contained elsewhere in this prospectus. This summary does not contain all of the information you should consider before investing in our common stock. You should read this entire prospectus carefully, especially the "Risk factors" section and our consolidated financial statements and the related notes appearing at the end of this prospectus, before making an investment decision.

Our company overview

We are a biopharmaceutical company discovering, developing and preparing to commercialize innovative medicines paired with companion diagnostics for the treatment of serious diseases, with an initial focus on cancer. Our mission is to provide patients, physicians and the healthcare system with the tools, medicines and information to transform the approach to care from one based on the identification and treatment of symptoms to one focused on the diagnosis and treatment of illness through a more precise mechanistic understanding of disease. We seek to accomplish this mission by applying our proprietary systems biology-based approach to biomedical research, which we call Network Biology. Our vision is to apply Network Biology to become a global healthcare enterprise that is founded on leading science and driven to deliver integrated healthcare solutions that improve both the quality of patient outcomes and the efficiency of care.

Network Biology is an interdisciplinary approach to drug discovery and development that enables us to build functional and predictive computational models of biological systems based on quantitative, kinetic, multiplexed biological data. It provides our scientists with insights into how the complex molecular interactions that occur within cell signaling pathways, or networks, regulate cell decisions and how dysfunction within these networks leads to disease. We apply Network Biology throughout the research and development process, including for target identification, lead compound design and optimization, diagnostic discovery, *in vitro* and *in vivo* predictive development and the design of clinical trial protocols. We believe that drug discovery and development using Network Biology is more efficient and productive than traditional approaches.

We currently have four targeted therapeutic oncology candidates in clinical development and a fifth that we expect to enter clinical development by the end of 2011. Additionally, we have multiple product candidates in preclinical development and an active Network Biology driven discovery effort. We own global commercialization rights to all of our product candidates other than rights in Taiwan to MM-398 and worldwide rights to MM-121, which we have partnered with Sanofi and have a right to co-promote in the United States. Our most advanced product candidates are:

- **MM-398:** MM-398 is a novel, stable nanotherapeutic encapsulation of the marketed chemotherapy drug irinotecan. MM-398 recently achieved its primary efficacy endpoints in Phase 2 clinical trials in pancreatic and gastric cancer. In the recently completed open label, single arm Phase 2 clinical trial of MM-398 as a monotherapy in 40 metastatic pancreatic cancer patients who had previously failed treatment with gemcitabine, patients treated with MM-398 achieved median overall survival of 22.4 weeks. Additionally, 20% of the patients in this Phase 2 trial survived for more than one year, and we observed a disease control rate, meaning patients exhibited stable disease or partial or complete response to treatment, of

47.5% at six weeks. There are currently no approved treatments for gemcitabine refractory metastatic pancreatic cancer, nor is there a consensus on standard of care treatment for such patients.

We plan to initiate a pivotal Phase 3 clinical trial of MM-398 for the treatment of patients with metastatic pancreatic cancer who have previously failed treatment with gemcitabine by the end of 2011. The trial is expected to enroll approximately 200 patients and is designed to compare the efficacy of MM-398 as a monotherapy against the combination of the chemotherapy drugs fluorouracil, or 5-FU, and leucovorin, a regimen often used by physicians to treat this patient population. We believe that MM-398 has potential uses in a number of other indications, including colorectal cancer, lung cancer, gastric cancer and glioma. There are multiple ongoing Phase 1 and Phase 2 clinical trials of MM-398.

- **MM-121:** MM-121 is a fully human monoclonal antibody that targets ErbB3, a cell surface receptor that our Network Biology approach identified as a potentially important target in a range of cancers. MM-121 is designed to inhibit cancer growth directly, restore sensitivity to drugs to which a tumor has become resistant and delay the development of resistance of a tumor to other agents. In collaboration with Sanofi, we are testing MM-121 in combination with both chemotherapies and other targeted agents across a wide spectrum of solid tumors, including lung, breast and ovarian cancers.

We partnered MM-121 with Sanofi after we initiated Phase 1 clinical development of this product candidate. Sanofi paid us an upfront license fee of $60 million and is responsible for all of the development and manufacturing costs under the collaboration. We are entitled to tiered royalties and aggregate clinical, regulatory and sales milestones of up to $470 million, of which we have already received $10 million for achieving a clinical milestone.

- **MM-111:** MM-111 is a bispecific antibody designed to target cancer cells that are characterized by overexpression of the ErbB2 cell surface receptor, also referred to as HER2. Our Network Biology approach identified that ligand-induced signaling through the complex of ErbB2 (HER2) and ErbB3 is a more powerful and widespread promoter of tumor growth and survival than previously appreciated. We believe that MM-111 is potentially applicable across a broad range of solid tumors. We are conducting multiple Phase 1 clinical trials of MM-111 in monotherapy and combination therapy settings.

- **MM-302:** MM-302 is a nanotherapeutic encapsulation of doxorubicin with attached antibodies that are designed to target MM-302 to cells that overexpress the ErbB2 (HER2) receptor. We believe that MM-302 has the potential to retain the safety profile of liposomal doxorubicin, in particular with respect to cardiac safety, and achieve better efficacy than either free doxorubicin or liposomal doxorubicin in ErbB2 (HER2) positive tumors. We are screening patients for Phase 1 clinical testing of MM-302 and are preparing to dose the first patient.

- **MM-151:** MM-151 is an oligoclonal therapeutic consisting of a mixture of three fully human monoclonal antibodies designed to bind to non-overlapping regions, or epitopes, of the epidermal growth factor receptor, or EGFR. EGFR is also know as ErbB1. We have designed MM-151 to block signal amplification that occurs within the ErbB cell signaling network, which we believe may result in greater efficacy than currently marketed EGFR (ErbB1)

inhibitors. We anticipate submitting an investigational new drug application, or IND, to the U.S. Food and Drug Administration, or FDA, for MM-151 in the third quarter of 2011.

We are developing companion diagnostics for use with each of our therapeutic oncology product candidates. We use Network Biology in our programs to identify biomarkers and develop them into companion diagnostic agents. We believe that companion diagnostics will allow us to improve the efficiency and productivity of our clinical development and enhance the efficacy and pharmacoeconomic benefit of our therapeutics.

We manufacture drug substance for use in our clinical trials and research and development efforts for all of our product candidates using current good manufacturing practices, or cGMP, at our 4,000 square foot multi-product facility. We have capacity to produce Phase 2 material for our antibody product candidates and commercial material for our nanotherapeutics.

Our strategy

Our goal is to build a global healthcare enterprise founded on a leading understanding of complex biology through the use of our Network Biology approach. Key elements of our strategy to achieve this goal are:

- Strengthen and expand our core Network Biology capabilities by continuing to invest in the technologies, methods and know-how that comprise our ability to explore, model and understand complex biology.
- Foster an integrated, multidisciplinary model of drug discovery, clinical development, manufacturing and commercialization, which is essential to our productivity, innovation and retention of knowledge across all of our processes from research through manufacturing.
- Develop a companion diagnostic for each of our therapeutic oncology product candidates so as to guide their use and enhance their benefit for patients and the healthcare system.
- Establish a focused sales and marketing organization, as we expect to retain commercial rights in the United States and Europe for our oncology product candidates, other than MM-121.

Advantages of Network Biology

We believe that Network Biology is a critical, biological data-based tool to discover important insights into biology and develop better medicines by allowing us to move beyond one dimensional measures of molecular activity, such as protein expression levels or gene mutation status, to an understanding of the system dynamics that govern cellular decisions. In oncology, Network Biology provides us with a detailed understanding of active signaling networks within a tumor cell that we use to guide the design of targeted therapeutics that we believe will appropriately disrupt the activity of these networks.

Specifically, we have used Network Biology to:

- Generate data suggesting that, although cancer occurs as a result of a myriad of environmental and genetic factors, it may be characterized as a disease of addiction to a relatively limited number of cell signaling networks that are used for growth and survival.

- Enhance our understanding of the significant signaling pathways used for survival, such as the ErbB pathway, to design novel therapeutics and therapeutic approaches that we believe will be clinically effective.

    - Our insight into the importance of the ErbB3 receptor as a highly sensitive target led to our development of MM-121 despite ErbB3 being largely ignored as a drug target by the broader scientific community.

    - Our understanding of the importance of ligand-induced signaling in the context of overexpressed proteins, particularly the interaction of ErbB2 (HER2) with ErbB3 and its ligand, heregulin, led to the development of MM-111, a novel bispecific antibody therapeutic.

    - Our computational modeling revealed the importance of inhibiting the binding of a full range of EGFR (ErbB1) ligands as a solution for preventing EGFR (ErbB1) cell survival signaling and led to the development of MM-151.

- Create and implement strategies for predicting response to our drugs based on the molecular and physical characteristics of tumors and tumor cells.

    - By profiling the levels of five proteins, we were able to successfully and accurately predict response to MM-121 in 20 different xenograft tumor models. This profile forms the basis for our development plans for a companion diagnostic for MM-121.

    - By building computational models of the key variables involved in the transport and deposition of nanotherapeutics in and around tumors, we are developing a strategy for imaging tumors to identify which are likely to respond to treatment.

- Move our products through preclinical development at a pace, cost and success rate that we believe compares favorably to industry benchmarks.

We believe that Network Biology gives us the ability to:

- Improve the productivity of the drug development process: We believe that Network Biology can produce more precisely targeted therapeutics, increase the productivity of biomedical research and increase the probability of approval for new drugs. We believe that Network Biology improves our decision making throughout the research and development process by providing our scientists with tools to simulate hypotheses in computer models and then test these hypotheses in preclinical and clinical settings.

- Improve patient care: We believe that integrated medicines consisting of a diagnostic paired with a therapeutic will enable physicians to deliver the right drug to the right set of patients at the right time, which will improve patient outcomes, reduce the overall costs of treating and caring for cancer patients and provide a basis for seeking favorable reimbursement of approved drugs from payors because of the benefits to patients.

- Address therapeutic areas beyond cancer: We believe that our Network Biology approach is applicable to a broad range of therapeutic areas beyond cancer, including bone and joint conditions, infectious disease, inflammation, central nervous system disease and other areas of medicine with high unmet needs.

Risks associated with our business

Our business is subject to a number of risks of which you should be aware before making an investment decision. These risks are discussed more fully in the "Risk factors" section of this prospectus immediately following this prospectus summary. In particular:

- We currently have no commercial products, and we have not received regulatory approval for, nor have we generated commercial revenue from, any of our products.
- We depend heavily on the success of our five most advanced product candidates. All of our product candidates are still in preclinical and clinical development. Clinical trials of our product candidates may not be successful. If we are unable to obtain required regulatory approvals of, commercialize, obtain and maintain patent protection for or gain sufficient market acceptance by physicians, patients and healthcare payors of our product candidates, or experience significant delays in doing so, our business will be materially harmed and our ability to generate revenue will be materially impaired.
- If we are unable to successfully develop companion diagnostics for our therapeutic product candidates, or experience significant delays in doing so, we may not receive marketing approval for or realize the full commercial potential of our therapeutics.
- We may depend on collaborations with third parties for the development and commercialization of our product candidates. If those collaborations are not successful, we may not be able to capitalize on the market potential of these product candidates. In particular, the successful development and commercialization of MM-121 depends substantially on our collaboration with Sanofi.
- Notwithstanding our large investment to date and anticipated future expenditures in Network Biology, we have not yet developed, and may never successfully develop, any marketed products using this approach.
- We have incurred significant losses since our inception and will need substantial additional funding. We expect to incur losses for the foreseeable future and may never achieve or maintain profitability. Our net loss was $13.5 million for the three months ended March 31, 2011, $50.2 million for the year ended December 31, 2010, $49.1 million for the year ended December 31, 2009 and $45.6 million for the year ended December 31, 2008. As of March 31, 2011, we had an accumulated deficit of $285.1 million.

Our corporate information

We were incorporated under the laws of the Commonwealth of Massachusetts in 1993 under the name Immtek, Inc. We changed our name to Atlantic BioPharmaceuticals, Inc. in 1995. In 2001, we acquired Merrimack Pharmaceuticals, Inc., a Delaware corporation, and changed our name to Merrimack Pharmaceuticals, Inc. In October 2010, we reincorporated in the State of Delaware. As a result, we are now a Delaware corporation with the name Merrimack Pharmaceuticals, Inc. Our principal executive offices are located at One Kendall Square, Suite B7201, Cambridge, Massachusetts 02139 and our telephone number is (617) 441-1000. Our website address is *www.merrimackpharma.com*. The information contained on, or that can be accessed through, our website is not a part of this prospectus. We have included our website address in this prospectus solely as an inactive textual reference.

In this prospectus, unless otherwise stated or the context otherwise requires, references to "Merrimack," "we," "us," "our" and similar references refer to Merrimack Pharmaceuticals, Inc. and its subsidiaries. The Merrimack logo is our trademark. The other trademarks, trade names and service marks appearing in this prospectus are the property of their respective owner.

This prospectus includes statistical and other industry and market data that we obtained from industry publications and research, surveys and studies conducted by third parties. Industry publications and third party research, surveys and studies generally indicate that their information has been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. While we believe these industry publications and third party research, surveys and studies are reliable, we have not independently verified such data. This prospectus also includes data based on our own internal estimates and research. While we believe that our internal company research is reliable and that our internal estimates are reasonable, no independent source has verified such research or estimates.

The offering

Common stock offered by us	shares
Common stock to be outstanding after this offering	shares
Over-allotment option	The underwriters have an option for a period of 30 days to purchase up to additional shares of our common stock to cover over-allotments.
Use of proceeds	We will use approximately $4.3 million of the net proceeds from this offering to pay accrued dividends on our series B convertible preferred stock. We expect to use the balance of the net proceeds from this offering to fund the clinical development of our most advanced product candidates, including MM-398, MM-111, MM-302 and MM-151, to fund research and development of our preclinical product candidates and for other general corporate purposes. See "Use of proceeds." Sanofi is responsible for all development and manufacturing costs under our collaboration for the development and commercialization of MM-121.
Risk factors	You should read the "Risk factors" section of this prospectus for a discussion of factors to consider carefully before deciding to invest in shares of our common stock.
Proposed NASDAQ Global Market symbol	MACK

The number of shares of our common stock to be outstanding after this offering is based on 11,308,950 actual shares of our common stock outstanding as of May 31, 2011 and 66,254,763 additional shares of our common stock issuable upon the automatic conversion of all outstanding shares of our preferred stock upon the closing of this offering.

The number of shares of our common stock to be outstanding after this offering excludes:

- 17,756,994 shares of our common stock issuable upon the exercise of stock options outstanding as of May 31, 2011 at a weighted average exercise price of $2.47 per share;
- 921,571 additional shares of our common stock available for future issuance as of May 31, 2011 under our 2008 stock incentive plan;
- additional shares of our common stock that will be available for future issuance, as of the closing of this offering, under our 2011 stock incentive plan; and
- 3,240,225 shares of our common stock issuable upon the exercise of warrants outstanding as of May 31, 2011 at a weighted average exercise price of $2.98 per share.

Unless otherwise indicated, all information in this prospectus assumes:

- no exercise of the outstanding options or warrants described above;
- no exercise by the underwriters of their option to purchase up to additiona l shares of our common stock to cover over-allotments;
- the automatic conversion of all outstanding shares of our preferred stock into an aggregate of 66,254,763 shares of our common stock upon the closing of this offering;
- that the warrant outstanding as of May 31, 2011 held by General Electric Capital Corporation to purchase 1,033 shares of our series C convertible preferred stock at an exercise price of $1.889 per share automatically becomes a warrant to purchase 1,033 shares of our common stock at an exercise price of $1.889 per share upon the closing of this offering;
- that the warrant outstanding as of May 31, 2011 held by Hercules Technology Growth Capital, Inc. to purchase 302,143 shares of our series D convertible preferred stock at an exercise price of $3.50 per share automatically becomes a warrant to purchase 302,143 shares of our common stock at an exercise price of $3.50 per share upon the closing of this offering; and
- the restatement of our restated certificate of incorporation and the amendment and restatement of our bylaws upon the closing of this offering.

Summary consolidated financial information

You should read the following summary consolidated financial data together with our consolidated financial statements and the related notes appearing at the end of this prospectus and the "Selected consolidated financial data" and "Management's discussion and analysis of financial condition and results of operations" sections of this prospectus. We have derived the consolidated statements of operations data for the years ended December 31, 2008, 2009 and 2010 from our audited consolidated financial statements included in this prospectus. We have derived the consolidated statements of operations data for the three months ended March 31, 2010 and 2011 and the consolidated balance sheet data as of March 31, 2011 from our unaudited consolidated financial statements included in this prospectus. The unaudited consolidated financial data include, in the opinion of our management, all adjustments, consisting only of normal recurring adjustments, that are necessary for a fair statement of our financial position and results of operations for these periods. Our historical results for any prior period are not necessarily indicative of results to be expected in any future period, and our results for any interim period are not necessarily indicative of results to be expected for a full fiscal year.

(in thousands, except per share data)	Year ended December 31, 2008	2009(1)	2010(2)	Three months ended March 31, 2010	2011(2)
				(unaudited)	
Consolidated statements of operations data:					
Research and development revenues	$ 365	$ 2,148	$ 20,305	$ 3,969	$ 6,461
Operating expenses:					
Research and development	34,528	37,658	58,278	13,415	18,001
General and administrative	8,836	12,178	11,381	2,453	3,101
Contingent consideration	—	—	(178)	—	—
Total operating expenses	43,364	49,836	69,481	15,868	21,102
Loss from operations	(42,999)	(47,688)	(49,176)	(11,899)	(14,641)
Other income and expenses:					
Interest income	1,243	81	74	14	14
Interest expense	(4,403)	(4,909)	(3,726)	(1,201)	(6)
Other, net	607	41	2,669	22	1,098
Net loss before income taxes and non-controlling interest	(45,552)	(52,475)	(50,159)	(13,064)	(13,535)
Benefit from income taxes	—	3,402	—	—	—
Net loss	(45,552)	(49,073)	(50,159)	(13,064)	(13,535)
Less net loss attributable to non-controlling interest	—	—	(55)	—	(78)
Net loss attributable to Merrimack Pharmaceuticals, Inc.	$ (45,552)	$ (49,073)	$ (50,104)	$ (13,064)	$ (13,457)
Net loss per share available to common stockholders—basic and diluted(3)	$ (8.17)	$ (7.28)	$ (5.57)	$ (1.31)	$ (1.35)
Weighted-average common shares used in computing net loss per share available to common stockholders—basic and diluted	6,199	7,387	10,994	10,868	11,106
Pro forma net loss per share available to common stockholders—basic and diluted (unaudited)(4)			$		$
Weighted-average common shares used in computing pro forma net loss per share available to common stockholders—basic and diluted (unaudited)(5)					

(1) In 2009, we acquired Hermes BioSciences, Inc. See Note 6 to our consolidated financial statements.

(2) In 2010 and 2011, we consolidated Silver Creek Pharmaceuticals, Inc. for financial reporting purposes.

(3) The numerator in the calculation of net loss per share available to common stockholders—basic and diluted includes unaccreted dividends on our convertible preferred stock.

(4) The numerator in the calculation of pro forma net loss per share available to common stockholders—basic and diluted has been adjusted to remove gains and losses resulting from re-measurement of the preferred stock warrant liabilities.

(5) Pro forma net loss per share available to common stockholders—basic and diluted is calculated assuming the automatic conversion of all outstanding shares of our preferred stock, including the series G convertible preferred stock that we issued in April 2011, into an aggregate of 66,253,812 shares of our common stock upon the closing of this offering and adjusted to reflect additional shares of common stock related to preferred stock dividends of approximately $4,263,000.

The pro forma balance sheet data set forth below give effect to:

- our issuance and sale in April 2011 of an aggregate of 11,000,000 shares of our series G convertible preferred stock at a price per share of $7.00 for an aggregate purchase price of $77.0 million;
- the automatic conversion of all outstanding shares of our preferred stock, including the series G convertible preferred stock that we issued in April 2011, into an aggregate of 66,253,812 shares of our common stock upon the closing of this offering;
- the reclassification of convertible preferred stock warrant liability to common stock warrants for warrants to purchase our preferred stock that will automatically become warrants to purchase an aggregate of 303,176 shares of our common stock upon the closing of this offering; and
- the accrual of series B convertible preferred stock dividends of approximately $4,263,000.

The pro forma as adjusted balance sheet data set forth below give further effect to:

- our issuance and sale of shares of our common stock in this offering at an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us; and
- our use of approximately $4,263,000 of the net proceeds from this offering to pay accrued dividends on our series B convertible preferred stock.

As of March 31, 2011 (in thousands)	Actual	Pro forma	Pro forma as adjusted
		(unaudited)	
Consolidated balance sheet data:			
Cash and cash equivalents	$ 32,595	$ 97,087	$
Total assets	64,901	129,393	
Deferred revenue	79,564	79,564	
Convertible preferred stock warrants liability	1,368	—	
Series G proceeds liability	12,508	—	
Total liabilities	105,041	95,428	
Non-controlling interest	949	949	
Convertible preferred stock	191,264	—	
Total stockholders' (deficit) equity	$ (232,353)	$ 33,016	$

Risk factors

Risks related to our financial position and need for additional capital

We have incurred significant losses since our inception. We expect to incur losses for the foreseeable future and may never achieve or maintain profitability.

Since inception, we have incurred significant operating losses. Our net loss was $13.5 million for the three months ended March 31, 2011, $50.2 million for the year ended December 31, 2010, $49.1 million for the year ended December 31, 2009 and $45.6 million for the year ended December 31, 2008. As of March 31, 2011, we had an accumulated deficit of $285.1 million. To date, we have financed our operations primarily through private placements of our preferred stock, collaborations and, to a lesser extent, through government grants, the monetization of tax credits and equipment lease financings. We have devoted substantially all of our efforts to research and development, including clinical trials. We have not completed development of any therapeutic product candidates or companion diagnostics. We expect to continue to incur significant expenses and increasing operating losses for at least the next several years. We anticipate that our expenses will increase substantially as we:

- initiate or continue our clinical trials of our five most advanced product candidates;
- continue the research and development of our other product candidates;
- seek to discover additional product candidates;
- seek regulatory approvals for our product candidates that successfully complete clinical trials;
- establish a sales, marketing and distribution infrastructure and scale up manufacturing capabilities to commercialize products for which we may obtain regulatory approval; and
- add operational, financial and management information systems and personnel, including personnel to support our product development and planned commercialization efforts.

To become and remain profitable, we must succeed in developing and eventually commercializing products with significant market potential. This will require us to be successful in a range of challenging activities, including discovering product candidates, successfully completing preclinical testing and clinical trials of our product candidates, obtaining regulatory approval for these product candidates and manufacturing, marketing and selling those products for which we may obtain regulatory approval. We are only in the preliminary stages of some of these activities. We may never succeed in these activities and may never generate revenues that are significant or large enough to achieve profitability. Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to become and remain profitable would depress the value of the company and could impair our ability to raise capital, expand our business, diversify our product offerings or continue our operations. A decline in the value of our company could also cause you to lose all or part of your investment.

We will need substantial additional funding. If we are unable to raise capital when needed, we would be forced to delay, reduce or eliminate our product development programs or commercialization efforts.

We expect our research and development expenses to increase in connection with our ongoing activities, particularly as we continue the research, development and clinical trials of, and seek regulatory approval for, our product candidates. In addition, subject to obtaining regulatory approval of any of our product candidates, we expect to incur significant commercialization expenses for product sales, marketing, manufacturing and distribution. We will need substantial additional funding in connection with our continuing operations. If we are unable to raise capital when needed or on attractive terms, we would be forced to delay, reduce or eliminate our research and development programs or commercialization efforts.

We expect that the net proceeds from this offering, together with our existing cash and cash equivalents, anticipated interest income and anticipated milestone payments and research and development and manufacturing funding under our collaboration agreement with Sanofi related to MM-121 will enable us to fund our operating expenses and capital expenditure requirements for at least . Our future capital requirements will depend on many factors, including:

- the progress and results of the clinical trials of our five most advanced product candidates;
- the success of our collaborations with Sanofi related to MM-121 and PharmaEngine Inc., or PharmaEngine, related to MM-398;
- the scope, progress, results and costs of preclinical development, laboratory testing and clinical trials for our other product candidates;
- the costs, timing and outcome of regulatory review of our product candidates;
- the costs of commercialization activities, including product sales, marketing, manufacturing and distribution;
- the costs of preparing, filing and prosecuting patent applications and maintaining, enforcing and defending intellectual property-related claims;
- the extent to which we acquire or invest in businesses, products and technologies; and
- our ability to establish and maintain additional collaborations on favorable terms, particularly marketing and distribution arrangements for oncology product candidates outside the United States and Europe.

Conducting preclinical testing and clinical trials is a time-consuming, expensive and uncertain process that takes years to complete, and we may never generate the necessary data required to obtain regulatory approval and achieve product sales. In addition, our product candidates, if approved, may not achieve commercial success. Our commercial revenues, if any, will be derived from sales of products that we do not expect to be commercially available for several years, if at all. Accordingly, we will need to continue to rely on additional financing to achieve our business objectives.

Raising additional capital may cause dilution to our existing stockholders, restrict our operations or require us to relinquish rights to our technologies or product candidates.

Until such time, if ever, as we can generate substantial product revenues, we expect to finance our cash needs through a combination of equity offerings, debt financings, collaborations, strategic alliances, licensing arrangements and other marketing and distribution arrangements. We do not have any committed external source of funds, other than our collaboration with Sanofi for the development and commercialization of MM-121, which is terminable by Sanofi for convenience upon 180 days' prior written notice. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect your rights as a stockholder. Debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. If we raise additional funds through marketing and distribution arrangements or other collaborations, strategic alliances or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or product candidates or to grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce or terminate our product development or commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

Risks related to the development and commercialization of our product candidates

We depend heavily on the success of our five most advanced product candidates. All of our product candidates are still in preclinical and clinical development. Clinical trials of our product candidates may not be successful. If we are unable to commercialize our product candidates, or experience significant delays in doing so, our business will be materially harmed.

We have invested a significant portion of our efforts and financial resources in the acquisition of rights to MM-398 and the development of our four other most advanced product candidates for the treatment of various types of cancer. All of our therapeutic product candidates are still in preclinical and clinical development. Our ability to generate product revenues, which we do not expect will occur for at least the next several years, if ever, will depend heavily on the successful development and eventual commercialization of these product candidates. The success of our product candidates, which include both our therapeutic product candidates and companion diagnostic candidates, will depend on several factors, including the following:

- successful completion of preclinical studies and clinical trials;
- receipt of marketing approvals from the FDA and similar regulatory authorities outside the United States for our product candidates, including our companion diagnostics (which are subject to regulation by the FDA as medical devices);
- establishing commercial manufacturing capabilities, either by building such facilities ourselves or making arrangements with third party manufacturers;
- launching commercial sales of the product, whether alone or in collaboration with others;

- acceptance of the product by patients, the medical community and third party payors;
- effectively competing with other therapies;
- a continued acceptable safety profile of the product following approval; and
- qualifying for, maintaining, enforcing and defending intellectual property rights and claims.

If we do not achieve one or more of these factors in a timely manner or at all, we could experience significant delays or an inability to successfully commercialize our product candidates, which would materially harm our business.

If clinical trials of our product candidates fail to demonstrate safety and efficacy to the satisfaction of the FDA or similar regulatory authorities outside the United States or do not otherwise produce positive results, we may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of our product candidates.

Before obtaining regulatory approval for the sale of our product candidates, we must conduct extensive clinical trials to demonstrate the safety and efficacy of our product candidates in humans. Clinical testing is expensive, difficult to design and implement, can take many years to complete and is uncertain as to outcome. A failure of one or more of our clinical trials can occur at any stage of testing. The outcome of preclinical testing and early clinical trials may not be predictive of the success of later clinical trials, and interim results of a clinical trial do not necessarily predict final results.

For example, the favorable results from a Phase 2 clinical trial of MM-398 in patients with metastatic pancreatic cancer may not be predictive of success in our planned Phase 3 clinical trial of MM-398 for the same indication, in particular because the trials have different efficacy endpoints and the Phase 2 trial was a single arm study that did not compare MM-398 to other therapies. Our planned Phase 3 trial is being designed to compare the efficacy of MM-398 against a combination of 5-FU and leucovorin based on an expected efficacy endpoint of statistically significant difference in overall survival. In addition, preclinical and clinical data are often susceptible to varying interpretations and analyses, and many companies that have believed their product candidates performed satisfactorily in preclinical studies and clinical trials have nonetheless failed to obtain marketing approval of their products.

We may experience numerous unforeseen events during, or as a result of, clinical trials that could delay or prevent our ability to receive regulatory approval or commercialize our product candidates, including:

- regulators or institutional review boards may not authorize us or our investigators to commence a clinical trial or conduct a clinical trial at a prospective trial site;
- clinical trials of our product candidates may produce negative or inconclusive results, and we may decide, or regulators may require us, to conduct additional clinical trials or abandon product development programs;
- the number of patients required for clinical trials of our product candidates may be larger than we anticipate, enrollment in these clinical trials may be slower than we anticipate or patients may drop out of these clinical trials at a higher rate than we anticipate;

- our third party contractors may fail to comply with regulatory requirements or meet their contractual obligations to us in a timely manner, or at all;
- we might have to suspend or terminate clinical trials of our product candidates for various reasons, including a finding that the patients are being exposed to unacceptable health risks;
- regulators or institutional review boards may require that we or our investigators suspend or terminate clinical research for various reasons, including noncompliance with regulatory requirements;
- the cost of clinical trials of our product candidates may be greater than we anticipate;
- the supply or quality of our product candidates or other materials necessary to conduct clinical trials of our product candidates may be insufficient or inadequate; and
- our product candidates may have undesirable side effects or other unexpected characteristics, causing us or our investigators to suspend or terminate the trials.

For example, due to a lack of efficacy in clinical trials, we suspended internal development of our product candidate MM-093, a potential therapeutic for autoimmune diseases. We subsequently terminated our development program for this product candidate and licensed it to a third party.

If we are required to conduct additional clinical trials or other testing of our product candidates beyond those that we currently contemplate, if we are unable to successfully complete clinical trials of our product candidates or other testing, if the results of these trials or tests are not positive or are only modestly positive or if there are safety concerns, we may:

- be delayed in obtaining marketing approval for our product candidates;
- not obtain marketing approval at all;
- obtain approval for indications that are not as broad as intended;
- have the product removed from the market after obtaining marketing approval;
- be subject to additional post-marketing testing requirements; or
- be subject to restrictions on how the product is distributed or used.

In particular, it is possible that the FDA may not consider the results of our planned Phase 3 clinical trial of MM-398 for the treatment of patients with metastatic pancreatic cancer, once completed, to be sufficient for approval of MM-398 for this indication. For example, even if we achieve favorable results in our planned pivotal Phase 3 clinical trial, the FDA may require that we conduct additional clinical trials, possibly using a different design. In addition, if we are unable to demonstrate comparability between MM-398 Phase 1 and Phase 2 clinical material manufactured by PharmaEngine and the material produced by us for use in our Phase 3 clinical trial of MM-398, we may be required to complete additional studies, including clinical studies, which could delay the development and approval, if any, of MM-398.

Our product development costs will also increase if we experience delays in testing or approvals. We do not know whether any clinical trials will begin as planned, will need to be restructured or will be completed on schedule, or at all. Significant clinical trial delays also

could shorten any periods during which we may have the exclusive right to commercialize our product candidates or allow our competitors to bring products to market before we do and impair our ability to commercialize our product candidates and may harm our business and results of operations.

If serious adverse or inappropriate side effects are identified during the development of our product candidates, we may need to abandon our development of some of our product candidates.

All of our product candidates are still in preclinical or clinical development and their risk of failure is high. It is impossible to predict when or if any of our product candidates will prove effective or safe in humans or will receive regulatory approval. Currently marketed therapies for solid tumors are generally limited to some extent by their toxicity. Use of our product candidates as monotherapies in clinical trials also has resulted in adverse events consistent in nature with other marketed therapies. When used in combination with other marketed therapies, our product candidates may exacerbate adverse events associated with the marketed therapy. If our product candidates result in undesirable side effects or have characteristics that are unexpected, we may need to abandon their development.

If we experience delays in the enrollment of patients in our clinical trials, our receipt of necessary regulatory approvals could be delayed or prevented.

We may not be able to initiate or continue clinical trials for our product candidates if we are unable to locate and enroll a sufficient number of eligible patients to participate in these trials as required by the FDA or other regulatory authorities. In addition, many of our competitors have ongoing clinical trials for product candidates that could be competitive with our product candidates, and patients who would otherwise be eligible for our clinical trials may instead enroll in clinical trials of our competitors' product candidates.

Enrollment delays in our clinical trials may result in increased development costs for our product candidates, which would cause the value of the company to decline and limit our ability to obtain additional financing. Our inability to enroll a sufficient number of patients for any of our current or future clinical trials would result in significant delays or may require us to abandon one or more clinical trials altogether.

If we are unable to successfully develop companion diagnostics for our therapeutic product candidates, or experience significant delays in doing so, we may not realize the full commercial potential of our therapeutics.

An important component of our business strategy is to develop companion diagnostics for each of our therapeutic product candidates. There has been limited success to date industry wide in developing these types of companion diagnostics. To be successful, we will need to address a number of scientific, technical and logistical challenges. All of our companion diagnostic candidates are in preclinical development or clinical feasability testing. We have limited experience in the development of diagnostics and may not be successful in developing appropriate diagnostics to pair with any of our therapeutic product candidates that receive marketing approval. Companion diagnostics are subject to regulation by the FDA and similar regulatory authorities outside the United States as medical devices and require separate regulatory approval prior to commercialization. Although we have developed prototype assays for some diagnostic candidates, given our limited experience in developing diagnostics, we

expect to rely in part on third parties for their design and manufacture. If we, or any third parties that we engage to assist us, are unable to successfully develop companion diagnostics for our therapeutic product candidates, or experience delays in doing so, the development of our therapeutic product candidates may be adversely affected, our therapeutic product candidates may not receive marketing approval and we may not realize the full commercial potential of any therapeutics that receive marketing approval. As a result, our business would be harmed, possibly materially.

Even if any of our product candidates, including our five most advanced product candidates, receive regulatory approval, they may fail to achieve the degree of market acceptance by physicians, patients, healthcare payors and others in the medical community necessary for commercial success.

If any of our product candidates, including our five most advanced product candidates, receive marketing approval, they may nonetheless not gain sufficient market acceptance by physicians, patients, healthcare payors and others in the medical community. If these products do not achieve an adequate level of acceptance, we may not generate significant product revenues and we may not become profitable. The degree of market acceptance of our product candidates, if approved for commercial sale, will depend on a number of factors, including:

- the prevalence and severity of any side effects;
- efficacy and potential advantages compared to alternative treatments;
- the price we charge for our product candidates;
- convenience and ease of administration compared to alternative treatments;
- the willingness of the target patient population to try new therapies and of physicians to prescribe these therapies;
- our ability to successfully develop companion diagnostics that effectively identify patient populations likely to benefit from treatment with our therapeutic products;
- the strength of marketing and distribution support; and
- sufficient third party coverage or reimbursement.

If we are unable to establish sales and marketing capabilities or enter into agreements with third parties to sell and market our product candidates, we may not be successful in commercializing our product candidates.

We do not have a sales or marketing infrastructure and have no experience in the sale, marketing or distribution of therapeutic products. To achieve commercial success for any approved product, we must either develop a sales and marketing organization or outsource these functions to third parties. Our current plan for our oncology products, other than MM-121, for which we receive marketing approval is to market and sell these products ourselves in the United States and Europe and to establish distribution or other marketing arrangements with third parties for these products in the rest of the world. We plan to co-promote MM-121 in the United States with Sanofi, which otherwise holds worldwide commercialization rights to this product candidate.

There are risks involved with both establishing our own sales and marketing capabilities and entering into arrangements with third parties to perform these services. For example, recruiting and training a sales force is expensive and time consuming and could delay any product launch. If the commercial launch of a product candidate for which we recruit a sales force and establish marketing capabilities is delayed or does not occur for any reason, we would have prematurely or unnecessarily incurred these commercialization expenses. This may be costly, and our investment would be lost if we cannot retain or reposition our sales and marketing personnel.

Establishing effective sales, marketing and distribution capabilities and infrastructure in Europe may be particularly difficult for us. We have no prior experience in these areas. In addition, there are complex regulatory, tax, labor and other legal requirements imposed by both the European Union and many of the individual countries in Europe with which we will need to comply. Many U.S. based biopharmaceutical companies have found the process of marketing their own products in Europe to be very challenging.

We also may not be successful entering into arrangements with third parties to sell and market our product candidates or doing so on terms that are favorable to us. We likely will have little control over such third parties, and any of them may fail to devote the necessary resources and attention to sell and market our products effectively. If we do not establish sales and marketing capabilities successfully, either on our own or in collaboration with third parties, we will not be successful in commercializing our product candidates.

We face substantial competition, which may result in others discovering, developing or commercializing products before or more successfully than we do.

The development and commercialization of new therapeutic and diagnostic products is highly competitive. We face competition with respect to our current product candidates, and will face competition with respect to any products that we may seek to develop or commercialize in the future, from major pharmaceutical companies, specialty pharmaceutical companies and biotechnology companies worldwide. Several large pharmaceutical and biotechnology companies currently market and sell products for the treatment of the solid tumor indications for which we are developing our product candidates. Potential competitors also include academic institutions, government agencies and other public and private research organizations that conduct research, seek patent protection and establish collaborative arrangements for research, development, manufacturing and commercialization. Many of these competitors are attempting to develop therapeutics for our target indications.

We are developing our product candidates for the treatment of solid tumors. There are a variety of available therapies marketed for solid tumors. In many cases, these drugs are administered in combination to enhance efficacy. Some of these drugs are branded and subject to patent protection, and others are available on a generic basis, including the active ingredients in MM-398 and MM-302. Many of these approved drugs are well established therapies and are widely accepted by physicians, patients and third party payors. This may make it difficult for us to achieve our business strategy of replacing existing therapies with our product candidates.

There are also a number of products in late stage clinical development to treat solid tumors. Our competitors may develop products that are more effective, safer, more convenient or less

costly than any that we are developing or that would render our product candidates obsolete or non-competitive. Our competitors may also obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for ours.

Many of our competitors have significantly greater financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical trials, obtaining regulatory approvals and marketing approved products than we do. Mergers and acquisitions in the pharmaceutical, biotechnology and diagnostic industries may result in even more resources being concentrated among a smaller number of our competitors. Smaller or early stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These third parties compete with us in recruiting and retaining qualified scientific and management personnel, establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs.

If we are able to commercialize any product candidates, the products may become subject to unfavorable pricing regulations, third party reimbursement practices or healthcare reform initiatives, thereby harming our business.

The regulations that govern marketing approvals, pricing and reimbursement for new therapeutic and diagnostic products vary widely from country to country. Some countries require approval of the sale price of a product before it can be marketed. In many countries, the pricing review period begins after marketing or product licensing approval is granted. In some foreign markets, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. As a result, we might obtain regulatory approval for a product in a particular country, but then be subject to price regulations that delay our commercial launch of the product and negatively impact the revenues we are able to generate from the sale of the product in that country. Adverse pricing limitations may hinder our ability to recoup our investment in one or more product candidates, even if our product candidates obtain regulatory approval.

Our ability to commercialize any products successfully also will depend in part on the extent to which reimbursement for these products and related treatments will be available from government health administration authorities, private health insurers and other organizations. Government authorities and third party payors, such as private health insurers and health maintenance organizations, decide which medications they will pay for and establish reimbursement levels. A primary trend in the U.S. healthcare industry and elsewhere is cost containment. Government authorities and these third party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications. Increasingly, third party payors are requiring that companies provide them with predetermined discounts from list prices and are challenging the prices charged for medical products. We cannot be sure that reimbursement will be available for any product that we commercialize and, if reimbursement is available, the level of reimbursement. Reimbursement may impact the demand for, or the price of, any product for which we obtain marketing approval. Obtaining reimbursement for our products may be particularly difficult because of the higher prices often associated with products administered under the supervision of a physician. If reimbursement is not available or is available only to limited levels, we may not be able to successfully commercialize any product candidate that we successfully develop.

There may be significant delays in obtaining reimbursement for approved products, and coverage may be more limited than the purposes for which the product is approved by the FDA or regulatory authorities in other countries. Moreover, eligibility for reimbursement does not imply that any product will be paid for in all cases or at a rate that covers our costs, including research, development, manufacture, sale and distribution. Interim payments for new products, if applicable, may also not be sufficient to cover our costs and may not be made permanent. Payment rates may vary according to the use of the product and the clinical setting in which it is used, may be based on payments allowed for lower cost products that are already reimbursed, and may be incorporated into existing payments for other services. Net prices for products may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors and by any future relaxation of laws that presently restrict imports of products from countries where they may be sold at lower prices than in the United States. Third party payors often rely upon Medicare coverage policy and payment limitations in setting their own reimbursement policies. Our inability to promptly obtain coverage and profitable payment rates from both government funded and private payors for new products that we develop could have a material adverse effect on our operating results, our ability to raise capital needed to commercialize products and our overall financial condition.

Product liability lawsuits against us could cause us to incur substantial liabilities and to limit commercialization of any products that we may develop.

We face an inherent risk of product liability exposure related to the testing of our product candidates in human clinical trials and will face an even greater risk if we commercially sell any products that we may develop. If we cannot successfully defend ourselves against claims that our product candidates or products caused injuries, we will incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

- decreased demand for any product candidates or products that we may develop;
- injury to our reputation and significant negative media attention;
- withdrawal of patients from clinical trials;
- significant costs to defend the related litigation;
- substantial monetary awards to patients;
- loss of revenue; and
- the inability to commercialize any products that we may develop.

We currently hold $5.0 million in product liability insurance coverage, which may not be adequate to cover all liabilities that we may incur. Insurance coverage is increasingly expensive. We may not be able to maintain insurance coverage at a reasonable cost or in an amount adequate to satisfy any liability that may arise.

We may expend our limited resources to pursue a particular product candidate or indication and fail to capitalize on product candidates or indications that may be more profitable or for which there is a greater likelihood of success.

Because we have limited financial and managerial resources, we focus on research programs and product candidates for specific indications. As a result, we may forego or delay pursuit of opportunities with other product candidates or other indications that later prove to have greater commercial potential. Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities. Our spending on current and future research and development programs and product candidates for specific indications may not yield any commercially viable products.

We have based our research and development efforts on our Network Biology approach. Notwithstanding our large investment to date and anticipated future expenditures in Network Biology, we have not yet developed, and may never successfully develop, any marketed products using this approach. As a result of pursuing our Network Biology approach, we may fail to address or develop product candidates or indications based on other scientific approaches that may offer greater commercial potential or for which there is a greater likelihood of success.

We also may not be successful in our efforts to identify or discover additional product candidates through our Network Biology approach. Research programs to identify new product candidates require substantial technical, financial and human resources. These research programs may initially show promise in identifying potential product candidates, yet fail to yield product candidates for clinical development.

If we do not accurately evaluate the commercial potential or target market for a particular product candidate, we may relinquish valuable rights to that product candidate through collaboration, licensing or other royalty arrangements in cases in which it would have been advantageous for us to retain sole development and commercialization rights.

We plan to establish separately funded companies for the development of product candidates using our Network Biology approach in some areas outside the oncology field. These companies may not be successful in the development and commercialization of any product candidates.

We plan to apply our Network Biology approach to multiple additional disease areas outside the oncology field. We expect to do so in some cases through the establishment of separately funded companies. For example, we have established a company called Silver Creek Pharmaceuticals, Inc., or Silver Creek, to develop product candidates in the field of regenerative medicine using Network Biology. Silver Creek has received separate funding from investors other than us. Although Silver Creek is currently majority owned by us, in the future we may not be the majority owner of or control Silver Creek or other companies that we establish. If in the future we do not control Silver Creek or any future similar company that we establish, Silver Creek or such other companies could take actions that we do not endorse or with which we disagree, such as using Network Biology in a way that reflects adversely on us. In addition, these companies may have difficulty raising additional funds and could encounter any of the risks in developing and commercializing product candidates to which we are subject.

If we fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs that could have a material adverse effect on the success of our business.

We are subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and wastes. Our operations involve the use of hazardous and flammable materials, including chemicals and radioactive and biological materials. Our operations also produce hazardous waste products. We generally contract with third parties for the disposal of these materials and wastes. We also store certain low level radioactive waste at our facilities until the materials can be properly disposed of. We cannot eliminate the risk of contamination or injury from these materials. In the event of contamination or injury resulting from our use of hazardous materials, we could be held liable for any resulting damages, and any liability could exceed our resources. We also could incur significant costs associated with civil or criminal fines and penalties.

Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials, this insurance may not provide adequate coverage against potential liabilities. We do not maintain insurance for environmental liability or toxic tort claims that may be asserted against us in connection with our storage or disposal of biological, hazardous or radioactive materials.

In addition, we may be required to incur substantial costs to comply with current or future environmental, health and safety laws and regulations. These current or future laws and regulations may impair our research, development or production efforts. Failure to comply with these laws and regulations also may result in substantial fines, penalties or other sanctions.

Risks related to our dependence on third parties

The successful development and commercialization of MM-121 depends substantially on our collaboration with Sanofi. If Sanofi is unable to further develop or commercialize MM-121, or experiences significant delays in doing so, our business will be materially harmed.

MM-121 is one of our most clinically advanced product candidates. In 2009, we entered into a collaboration and license agreement with Sanofi for the development and commercialization of MM-121. Prior to this collaboration, we did not have a history of working together with Sanofi. The collaboration involves a complex allocation of rights, provides for milestone payments to us based on the achievement of specified development, regulatory and commercial sale milestones and provides us with royalty-based revenue if MM-121 is successfully commercialized. We cannot predict the success of the collaboration.

Under our collaboration agreement, Sanofi has significant control over the conduct and timing of development and commercialization efforts with respect to MM-121. Although we and Sanofi have approved a global development plan, Sanofi may change its development plans for MM-121. We have little control over the amount and timing of resources that Sanofi devotes to the development or commercialization of MM-121. If Sanofi fails to devote sufficient financial and other resources to the development or commercialization of MM-121, the development and commercialization of MM-121 would be delayed or could fail. This would

result in a delay in our receiving milestone payments or royalties with respect to MM-121 or in our not receiving such milestone payments or royalties at all.

If we do not satisfy various conditions under our collaboration and license agreement with Sanofi, we will not realize all of the anticipated benefits under the agreement and our business would be materially harmed.

Our collaboration and license agreement with Sanofi contains a number of conditions that we must satisfy in order to receive milestone payments and royalties. For example, Sanofi has agreed to pay us royalties on sales of products containing MM-121 if issued patents cover the manufacture, use or sale of such products. However, if we do not file the original patent application from which an issued patent claims priority by the later of December 31, 2014 or the receipt of regulatory approval for MM-121 in the United States or the European Union, the royalties, if any, that we will receive with respect to sales of products covered by such issued patent will be significantly less than the royalties we would expect to receive had we met such filing deadline. If we do not meet this deadline or achieve any of the other milestones or deadlines contained in the agreement, we will not receive all of the payments or revenue that we might otherwise receive under the agreement had we met such deadlines or achieved such milestones.

If we lose Sanofi as a collaborator in the development or commercialization of MM-121, it would materially harm our business.

Sanofi has the right to terminate our agreement for the development and commercialization of MM-121, in whole or with respect to specified territories, at any time and for any reason, upon 180 days' prior written notice. Sanofi also has the right to terminate our agreement if we fail to cure a material breach of our agreement within a specified cure period, or fail to diligently pursue a cure if such a breach is not curable within such period.

If Sanofi terminates our agreement at any time, whether on the basis of our uncured material breach or for any other reason, it would delay or prevent our development of MM-121 and materially harm our business and could accelerate our need for additional capital. In particular, we would have to fund the clinical development and commercialization of MM-121 on our own, seek another collaborator or licensee for such clinical development and commercialization or abandon the development and commercialization of MM-121.

The successful development and commercialization of MM-398 currently depend on our collaboration with PharmaEngine. If PharmaEngine does not provide clinical trial data to us, our business may be materially harmed.

We have a collaboration with PharmaEngine for the development of MM-398. Under this collaboration, PharmaEngine has rights to commercialize MM-398 in Taiwan, while we hold commercialization rights in all other countries, including the United States. PharmaEngine also has the opportunity to participate in the development of MM-398, for which we are reimbursing their costs. We cannot predict the success of the collaboration. The collaboration involves an allocation of rights, provides for milestone payments by us to PharmaEngine based on the achievement of specified milestones and provides for us to pay PharmaEngine royalties on sales of MM-398 in Europe and specified Asian countries if MM-398 is successfully commercialized in Europe and such specified Asian countries.

We rely on PharmaEngine to provide data and information to us from trials they have conducted and are currently conducting. This information is necessary for our development of MM-398 in the United States. If PharmaEngine does not provide this information to us, our development of MM-398 could be significantly delayed and our costs could increase significantly.

We may depend on collaborations with third parties for the development and commercialization of our product candidates. If those collaborations are not successful, we may not be able to capitalize on the market potential of these product candidates.

Our business plan is to enter into distribution and other marketing arrangements for our oncology products in areas of the world outside of the United States and Europe. In addition, depending on our capital requirements, development and commercialization costs, need for additional therapeutic expertise and other factors, it is possible that we will enter into broader development and commercialization arrangements with respect to either oncology product candidates in addition to MM-121 or product candidates in other therapeutic areas in the United States or Europe or other territories. In particular, while we expect to apply our Network Biology approach to some other disease areas through arrangements similar to Silver Creek, it is also possible that we will seek to enter into licensing agreements or other types of collaborations for the application of our Network Biology approach.

Our likely collaborators for any distribution, marketing, licensing or broader collaboration arrangements include large and mid-size pharmaceutical companies, regional and national pharmaceutical companies and biotechnology companies. We will have limited control over the amount and timing of resources that our collaborators dedicate to the development or commercialization of our product candidates. Our ability to generate revenues from these arrangements will depend on our collaborators' abilities to successfully perform the functions assigned to them in these arrangements.

Collaborations involving our product candidates, including our collaboration with Sanofi, pose the following risks to us:

- collaborators have significant discretion in determining the efforts and resources that they will apply to these collaborations;
- collaborators may not pursue development and commercialization of our product candidates or may elect not to continue or renew development or commercialization programs based on clinical trial results, changes in their strategic focus or available funding, or external factors such as an acquisition that diverts resources or creates competing priorities;
- collaborators may delay clinical trials, provide insufficient funding for a clinical trial program, stop a clinical trial or abandon a product candidate, repeat or conduct new clinical trials or require a new formulation of a product candidate for clinical testing;
- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our products or product candidates if the collaborators believe that competitive products are more likely to be successfully developed or can be commercialized under terms that are more economically attractive;
- a collaborator with marketing and distribution rights to one or more products may not commit sufficient resources to their marketing and distribution;

- collaborators may not properly maintain or defend our intellectual property rights or may use our proprietary information in such a way as to invite litigation that could jeopardize or invalidate our proprietary information or expose us to potential litigation;

- disputes may arise between us and the collaborators that result in the delay or termination of the research, development or commercialization of our product candidates or that result in costly litigation or arbitration that diverts management attention and resources; and

- collaborations may be terminated and, if terminated, may result in a need for additional capital to pursue further development or commercialization of the applicable product candidates.

Collaboration agreements may not lead to development or commercialization of product candidates in the most efficient manner or at all. In addition, there have been a significant number of recent business combinations among large pharmaceutical companies that have resulted in a reduced number of potential future collaborators. If a present or future collaborator of ours were to be involved in a business combination, the continued pursuit and emphasis on our product development or commercialization program could be delayed, diminished or terminated.

If we are not able to establish additional collaborations, we may have to alter our development plans.

Our product development programs and the potential commercialization of our product candidates will require substantial additional cash to fund expenses. For some of our product candidates, we may decide to collaborate with pharmaceutical and biotechnology companies for the development and potential commercialization of those product candidates.

We face significant competition in seeking appropriate collaborators. Collaborations are complex and time-consuming to negotiate and document. We may also be restricted under existing collaboration agreements from entering into agreements on certain terms with other potential collaborators. We may not be able to negotiate collaborations on acceptable terms, or at all. If that were to occur, we may have to curtail the development of a particular product candidate, reduce or delay its development program or one or more of our other development programs, delay its potential commercialization or reduce the scope of our sales or marketing activities, or increase our expenditures and undertake development or commercialization activities at our own expense. If we elect to increase our expenditures to fund development or commercialization activities on our own, we may need to obtain additional capital, which may not be available to us on acceptable terms or at all. If we do not have sufficient funds, we will not be able to bring our product candidates to market and generate product revenue.

We rely on third parties to conduct our clinical trials, and those third parties may not perform satisfactorily, including failing to meet deadlines for the completion of such trials.

We do not independently conduct clinical trials of our product candidates. We rely on third parties, such as contract research organizations, clinical data management organizations, medical institutions and clinical investigators, to perform this function. Our reliance on these third parties for clinical development activities reduces our control over these activities but does not relieve us of our responsibilities. We remain responsible for ensuring that each of our clinical trials is conducted in accordance with the general investigational plan and protocols for

the trial. Moreover, the FDA requires us to comply with standards, commonly referred to as good clinical practices, for conducting, recording and reporting the results of clinical trials to assure that data and reported results are credible and accurate and that the rights, integrity and confidentiality of patients in clinical trials are protected. Furthermore, these third parties may also have relationships with other entities, some of which may be our competitors. If these third parties do not successfully carry out their contractual duties, meet expected deadlines or conduct our clinical trials in accordance with regulatory requirements or our stated protocols, we will not be able to obtain, or may be delayed in obtaining, regulatory approvals for our product candidates and will not be able to, or may be delayed in our efforts to, successfully commercialize our product candidates.

We also rely on other third parties to store and distribute supplies for our clinical trials. Any performance failure on the part of our existing or future distributors could delay clinical development or regulatory approval of our product candidates or commercialization of our products, producing additional losses and depriving us of potential product revenue.

Risks related to the manufacturing of our product candidates

We have limited experience in manufacturing our product candidates. We will need to upgrade and expand our manufacturing facility and augment our manufacturing personnel and processes in order to meet our business plans. If we fail to do so, we may not have sufficient drug product to meet our clinical development and commercial requirements.

We have a manufacturing facility located at our corporate headquarters in Cambridge, Massachusetts. We manufacture drug substance at this facility that we use for research and development purposes and for clinical trials of our product candidates. We do not have experience in manufacturing products at commercial scale. Our current facility may not be sufficient to permit manufacturing of our antibody product candidates for Phase 3 clinical trials or commercial sale. In order to meet our business plan, which contemplates our internally manufacturing drug substance for most of our clinical trials and, over the long term, for a significant portion of our commercial requirements, we will need to upgrade and expand our manufacturing facilities, add manufacturing personnel and ensure that validated processes are consistently implemented in our facilities. The upgrade and expansion of our facilities will require additional regulatory approvals. In addition, it will be costly and time consuming to expand our facilities and recruit necessary additional personnel. If we are unable to expand our manufacturing facilities in compliance with regulatory requirements or to hire additional necessary manufacturing personnel, we may encounter delays or additional costs in achieving our research, development and commercialization objectives, including in obtaining regulatory approvals of our product candidates, which could materially damage our business and financial position.

If our sole clinical manufacturing facility is damaged or destroyed or production at this facility is otherwise interrupted, our business and prospects would be negatively affected.

If the manufacturing facility at our corporate headquarters or the equipment in it is damaged or destroyed, we may not be able to quickly or inexpensively replace our manufacturing capacity or replace it at all. In the event of a temporary or protracted loss of this facility or equipment, we might not be able to transfer manufacturing to a third party. Even if we could transfer manufacturing to a third party, the shift would likely be expensive and

time-consuming, particularly since the new facility would need to comply with the necessary regulatory requirements and we would need FDA approval before selling any products manufactured at that facility. Such an event could delay our clinical trials or, if our product candidates are approved by the FDA, reduce our product sales.

Currently, we maintain insurance coverage against damage to our property and equipment and to cover business interruption and research and development restoration expenses. If we have underestimated our insurance needs with respect to an interruption in our clinical manufacturing of our product candidates, we may not be able to cover our losses.

Any other interruption of production at our manufacturing facility also could damage our business. For example, in 2009, we experienced a viral contamination at this facility that required that we shut the facility entirely for decontamination. Because of this contamination, the FDA placed a partial clinical hold on our MM-121 IND until we submitted supporting documentation to the FDA regarding our decontamination procedures. Although we were able to resolve this issue, with the FDA lifting the partial clinical hold in April 2010, other companies have experienced similar contamination problems, and we could experience a similar problem in the future that is more difficult to resolve and could lead to a clinical hold.

We expect to continue to contract with third parties for at least some aspects of the production of our product candidates for clinical trials and for our products if they are approved for marketing. This increases the risk that we will not have sufficient quantities of our product candidates or products or such quantities at an acceptable cost, which could delay, prevent or impair our development or commercialization efforts.

We currently rely on third party manufacturers for some aspects of the production of our product candidates for preclinical testing and clinical trials, including fill-finish and labeling activities. In addition, while we believe that our existing manufacturing facilities, or additional facilities that we will be able to build, will be sufficient to meet our requirements for manufacturing a significant portion of drug substance for our research and development activities, we may need to rely on third party manufacturers for some of these requirements, particularly later stage clinical trials of our antibody product candidates, and, at least in the near term, for commercial supply of any product candidates for which we obtain marketing approval.

We do not have any agreements with third party manufacturers for the clinical or commercial supply of any of our product candidates, and we may be unable to conclude such agreements or to do so on acceptable terms. Reliance on third party manufacturers entails additional risks, including:

- reliance on the third party for regulatory compliance and quality assurance;
- the possible breach of the manufacturing agreement by the third party; and
- the possible termination or nonrenewal of the agreement by the third party at a time that is costly or inconvenient for us.

Third party manufacturers may not be able to comply with cGMP or Quality System Regulation, or QSR, or similar regulatory requirements outside the United States. Our failure, or the failure of our third party manufacturers, to comply with applicable regulations could result in sanctions being imposed on us, including fines, injunctions, civil penalties, delays, suspension or

withdrawal of approvals, license revocation, seizures or recalls of products, operating restrictions and criminal prosecutions, any of which could significantly and adversely affect supplies of our products.

Any products that we may develop may compete with other product candidates and products for access to manufacturing facilities. There are a limited number of manufacturers that operate under cGMP or QSR regulations and that might be capable of manufacturing for us.

We currently rely on single suppliers for the resins, media and filters that we use for our manufacturing process. We purchase these materials from our suppliers on a purchase order basis and do not have long-term supply agreements in place. Any performance failure or refusal to supply on the part of our existing or future suppliers could delay clinical development, marketing approval or commercialization of our products. If our current suppliers cannot perform as agreed, we may be required to replace one or more of these suppliers. Although we believe that there are a number of potential long-term replacements to each supplier, we may incur added costs and delays in identifying and qualifying any such replacements.

We likely will rely upon third party manufacturers to provide us with necessary reagents and instruments to develop, test and manufacture our companion diagnostics. Currently, many reagents are marketed as Research Use Only, or RUO, products under FDA regulations. In June 2011, the FDA issued a draft guidance that outlined the FDA's intention to impose additional restrictions on the provision of RUO products. If this guidance is finalized, we may experience difficulty securing the reagents that we need.

Our potential future dependence upon others for the manufacture of our product candidates may adversely affect our future profit margins and our ability to commercialize any products that receive regulatory approval on a timely and competitive basis.

One of our fill-finish contractors received a warning letter from the FDA, which impacted our clinical trials of MM-121 and may impact or delay our clinical trials of MM-111.

Recently, a third party contractor that we have used to fill and package both MM-121 and MM-111 experienced FDA inspection issues with its quality control processes that resulted in a formal warning letter from the FDA. Following a review by Sanofi and us, some MM-121 was pulled from clinical trial sites and replaced with MM-121 that was filled by a different contractor. This restocking is complete and resulted in a few patients missing one or two doses of MM-121. The MM-111 that is currently being used in our clinical trials was also filled and packaged by this same contractor. The FDA recently inquired about the effect of this contractor's quality issues on MM-111 clinical trial materials. We have responded to the FDA's inquiry with the results of our hazard analysis, and we have not received any further inquiry from the FDA. It is possible that the FDA could delay or halt our MM-111 clinical trials.

Risks related to our intellectual property

If we fail to comply with our obligations in our intellectual property licenses with third parties, we could lose license rights that are important to our business.

We are a party to a number of intellectual property license agreements with third parties, including with respect to MM-398, MM-121 and MM-111, and expect to enter into additional license agreements in the future. Our existing license agreements impose, and we expect that our future license agreements will impose, various diligence, milestone payment, royalty, insurance and other obligations on us. If we fail to comply with these obligations, our licensors may have the right to terminate these agreements, in which event we might not be able to develop and market any product that is covered by these agreements. Termination of these licenses or reduction or elimination of our licensed rights may result in our having to negotiate new or reinstated licenses with less favorable terms. The occurrence of such events could materially harm our business.

If we are unable to obtain and maintain patent protection for our technology and products, or if our licensors are unable to obtain and maintain patent protection for the technology or products that we license from them, our competitors could develop and commercialize technology and products similar or identical to ours, and our ability to successfully commercialize our technology and products may be adversely affected.

Our success depends in large part on our and our licensors' ability to obtain and maintain patent protection in the United States and other countries with respect to our proprietary technology and products. In some circumstances, we may not have the right to control the preparation, filing and prosecution of patent applications, or to maintain the patents, covering technology or products that we license from third parties. Therefore, we cannot be certain that these patents and applications will be prosecuted and enforced in a manner consistent with the best interests of our business. In addition, if third parties who license patents to us fail to maintain such patents, or lose rights to those patents, the rights we have licensed may be reduced or eliminated.

We have sought to protect our proprietary position by filing patent applications in the United States and abroad related to our novel technologies and products that are important to our business. This process is expensive and time-consuming, and we may not be able to file and prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner. It is also possible that we will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection. Under our collaboration agreement with Sanofi, we are obligated, at our expense, to use commercially reasonable efforts to file and prosecute patent applications, and maintain patents, covering MM-121 in specified jurisdictions, and these patent rights are licensed to Sanofi.

The patent position of biotechnology and pharmaceutical companies generally is highly uncertain, involves complex legal and factual questions and has in recent years been the subject of much litigation. As a result, the issuance, scope, validity, enforceability and commercial value of our and our licensors' patent rights are highly uncertain. Our and our licensors' pending and future patent applications may not result in patents being issued which protect our technology or products or which effectively prevent others from commercializing competitive technologies and products. Changes in either the patent laws or interpretation of the patent laws in the United States and other countries may diminish the value of our patents or narrow the scope of our patent protection. The laws of foreign countries may not protect

our rights to the same extent as the laws of the United States. Publications of discoveries in the scientific literature often lag behind the actual discoveries, and patent applications in the United States and other jurisdictions are typically not published until 18 months after filing, or in some cases not at all. Therefore, we cannot be certain that we or our licensors were the first to make the inventions claimed in our owned and licensed patents or pending patent applications, or that we or our licensors were the first to file for patent protection of such inventions. Assuming the other requirements for patentability are met, in the United States, the first to make the claimed invention is entitled to the patent, while outside the United States, the first to file a patent application is entitled to the patent. We may become involved in opposition or interference proceedings challenging our patent rights or the patent rights of others. An adverse determination in any such proceeding could reduce the scope of, or invalidate, our patent rights, allow third parties to commercialize our technology or products and compete directly with us, without payment to us, or result in our inability to manufacture or commercialize products without infringing third party patent rights.

Even if our owned and licensed patent applications issue as patents, they may not issue in a form that will provide us with any meaningful protection, prevent competitors from competing with us or otherwise provide us with any competitive advantage. Our competitors may be able to circumvent our owned or licensed patents by developing similar or alternative technologies or products in a non-infringing manner. The issuance of a patent is not conclusive as to its scope, validity or enforceability, and our owned and licensed patents may be challenged in the courts or patent offices in the United States and abroad. Such challenges may result in patent claims being narrowed, invalidated or held unenforceable, which could limit our ability to stop or prevent us from stopping others from using or commercializing similar or identical technology and products, or limit the duration of the patent protection of our technology and products. Given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. As a result, our owned and licensed patent portfolio may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours.

We may become involved in lawsuits to protect or enforce our patents, which could be expensive, time consuming and unsuccessful.

Competitors may infringe our patents. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time consuming. In addition, in an infringement proceeding, a court may decide that a patent of ours is invalid or unenforceable, or may refuse to stop the other party from using the technology at issue on the grounds that our patents do not cover the technology in question. An adverse result in any litigation proceeding could put one or more of our patents at risk of being invalidated or interpreted narrowly. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation.

Third parties may initiate legal proceedings alleging that we are infringing their intellectual property rights, the outcome of which would be uncertain and could have a material adverse effect on the success of our business.

Our commercial success depends upon our ability and the ability of our collaborators to develop, manufacture, market and sell our product candidates and use our proprietary

technologies without infringing the proprietary rights of third parties. We may become party to, or threatened with, future adversarial proceedings or litigation regarding intellectual property rights with respect to our products and technology, including interference proceedings before the U.S. Patent and Trademark Office. Third parties may assert infringement claims against us based on existing patents or patents that may be granted in the future. If we are found to infringe a third party's intellectual property rights, we could be required to obtain a license from such third party to continue developing and marketing our products and technology. However, we may not be able to obtain any required license on commercially reasonable terms or at all. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. We could be forced, including by court order, to cease commercializing the infringing technology or product. In addition, we could be found liable for monetary damages. A finding of infringement could prevent us from commercializing our product candidates or force us to cease some of our business operations, which could materially harm our business. Claims that we have misappropriated the confidential information or trade secrets of third parties can have a similar negative impact on our business.

For example, we are aware of issued U.S. patents held by Genentech, Inc., or Genentech, broadly covering methods of producing certain types of recombinant antibodies and related compositions for antibody production that may be relevant to our development and commercialization of MM-121, MM-302 and MM-151. These patents expire in 2018. Genentech has asserted infringement claims against several pharmaceutical and biotechnology companies based on these patents. If these patents were determined to be valid and cover our product candidates, we would need to obtain a license to the patented technology, which may cause us to incur licensing related costs. However, a license to these patents may not be available on commercially reasonable terms, or at all. Our failure to obtain a license to these patents could delay or prevent our development and commercialization of our product candidates in the United States.

We may be subject to claims that our employees have wrongfully used or disclosed alleged trade secrets of their former employers.

Many of our employees were previously employed at universities or other biotechnology or pharmaceutical companies, including our competitors or potential competitors. Although we try to ensure that our employees do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that we or these employees have used or disclosed intellectual property, including trade secrets or other proprietary information, of any such employee's former employer. Litigation may be necessary to defend against these claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management.

We are currently engaged in three ongoing opposition proceedings to European patents in the European Patent Office. If we are not successful in these proceedings, we may not be able to commercialize some of our product candidates without infringing patents held by third parties.

We are currently engaged in three ongoing opposition proceedings to European patents in the European Patent Office to narrow or invalidate the claims of patents owned by third parties. For more information, see "Business—Legal proceedings." We have obtained favorable interim decisions in two of the oppositions and a favorable preliminary, non-binding opinion in the

third. However, the ultimate outcome of all three oppositions remains uncertain. If we are not ultimately successful in these proceedings, and the issued claims of the patents we are opposing were determined to be valid and construed to cover MM-121 or MM-111, we may not be able to commercialize MM-121 or MM-111 in some or all European countries without infringing such patents. If we infringe a valid claim of these patents, we would need to obtain a license to the patented technology, which may cause us to incur licensing related costs. For example, under our collaboration agreement with Sanofi, we are obligated to pay all licensing costs for specified third party patent rights that we or Sanofi may in the future license for the development and commercialization of MM-121, including the patent rights that are the subject of two of these opposition proceedings. However, a license to the patents that are the subject of these opposition proceedings may not be available on commercially reasonable terms or at all. As a result, we could be liable for monetary damages or we may be forced to delay, suspend, forego or cease commercializing these product candidates in some or all countries in Europe if we were found to infringe a valid claim of these patents. In addition, even if we are ultimately successful in these European opposition proceedings, such results would be limited to our activities in Europe.

We are also aware of issued or pending counterparts to some of these European patents in the United States that may be relevant to our development and commercialization of MM-121. If these patents were determined to be valid and construed to cover MM-121, our development and commercialization of MM-121 in the United States could be delayed or prevented.

Intellectual property litigation could cause us to spend substantial resources and distract our personnel from their normal responsibilities.

Even if resolved in our favor, litigation or other legal proceedings relating to intellectual property claims may cause us to incur significant expenses, and could distract our technical and management personnel from their normal responsibilities. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Such litigation or proceedings could substantially increase our operating losses and reduce our resources available for development activities. We may not have sufficient financial or other resources to adequately conduct such litigation or proceedings. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their substantially greater financial resources. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on our ability to compete in the marketplace.

If we are unable to protect the confidentiality of our trade secrets, our business and competitive position would be harmed.

In addition to our patented technology and products, we rely on trade secrets, including unpatented know-how, technology and other proprietary information, to maintain our competitive position. We seek to protect these trade secrets, in part, by entering into non-disclosure and confidentiality agreements with parties that have access to them, such as our employees, corporate collaborators, outside scientific collaborators, sponsored researchers, contract manufacturers, consultants, advisors and other third parties. We also enter into confidentiality and invention or patent assignment agreements with our employees and consultants. In addition, any of these parties may breach the agreements and disclose our

proprietary information, and we may not be able to obtain adequate remedies for such breaches. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time-consuming, and the outcome is unpredictable. In addition, some courts inside and outside the United States are less willing or unwilling to protect trade secrets. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor, we would have no right to prevent them from using that technology or information to compete with us. If any of our trade secrets were to be disclosed to or independently developed by a competitor, our competitive position would be harmed.

Risks related to regulatory approval of our product candidates

If we are not able to obtain required regulatory approvals, we will not be able to commercialize our product candidates, and our ability to generate revenue will be materially impaired.

Our product candidates, including our five most advanced product candidates, and the activities associated with their development and commercialization, including their design, testing, manufacture, safety, efficacy, recordkeeping, labeling, storage, approval, advertising, promotion, sale and distribution, are subject to comprehensive regulation by the FDA and other regulatory agencies in the United States and by comparable authorities in other countries. Failure to obtain regulatory approval for a product candidate will prevent us from commercializing the product candidate. We have not received regulatory approval to market any of our product candidates in any jurisdiction. We have only limited experience in filing and supporting the applications necessary to gain regulatory approvals and expect to rely on third party contract research organizations to assist us in this process. Securing FDA approval requires the submission of extensive preclinical and clinical data and supporting information to the FDA for each therapeutic indication to establish the product candidate's safety and efficacy. Securing FDA approval also requires the submission of information about the product manufacturing process to, and inspection of manufacturing facilities by, the FDA. Our product candidates may not be effective, may be only moderately effective or may prove to have undesirable or unintended side effects, toxicities or other characteristics that may preclude our obtaining regulatory approval or prevent or limit commercial use.

The process of obtaining regulatory approvals is expensive, may take many years if additional clinical trials are required, if approval is obtained at all, and can vary substantially based upon a variety of factors, including the type, complexity and novelty of the product candidates involved. Changes in regulatory approval policies during the development period, changes in or the enactment of additional statutes or regulations, or changes in regulatory review for each submitted product application, may cause delays in the approval or rejection of an application. The FDA has substantial discretion in the approval process and may refuse to accept any application or may decide that our data is insufficient for approval and require additional preclinical, clinical or other studies. In addition, varying interpretations of the data obtained from preclinical and clinical testing could delay, limit or prevent regulatory approval of a product candidate. Any regulatory approval we ultimately obtain may be limited or subject to restrictions or post-approval commitments that render the approved product not commercially viable.

If we pursue development of a companion diagnostic to identify patients who are likely to benefit from a therapeutic product, failure to obtain approval for the diagnostic may prevent or delay approval of the therapeutic product.

We are attempting to develop companion diagnostics to identify patients who are likely to benefit from our therapeutic product candidates. In order to obtain regulatory approval for a therapeutic product candidate that has been developed using a diagnostic to identify patients for clinical trials or has shown a benefit for such patients in clinical trials, we will need to seek simultaneous approval of the diagnostic, very likely through the FDA's Center for Devices and Radiological Health Office of In Vitro Diagnostic Device Evaluation and Safety, or OIVD. We have very limited experience in the development of diagnostics and may fail to obtain the required diagnostic product marketing approval, which could prevent or delay approval of the therapeutic product. The FDA's expectations for companion diagnostics are unclear in many respects, and the FDA is expected to provide some clarity in upcoming guidance. The FDA's developing expectations will affect our companion diagnostics. In particular, the FDA may limit our ability to use retrospective data, otherwise disagree with our approaches to trial design, biomarker qualification, clinical and analytical validity and clinical utility, or make us repeat aspects of the trial or initiate new trials. We have yet to seek a meeting with OIVD to discuss any of our tests.

Our therapeutic product candidates for which we intend to seek approval as biological products may face competition sooner than expected.

With the enactment of the Biologics Price Competition and Innovation Act of 2009, or BPCIA, as part of the Health Care and Education Reconciliation Act of 2010, or the Health Care Reform Law, an abbreviated pathway for the approval of biosimilar and interchangeable biological products was created. The new abbreviated regulatory pathway establishes legal authority for the FDA to review and approve biosimilar biologics, including the possible designation of a biosimilar as "interchangeable" based on their similarity to existing brand product. Under the BPCIA, an application for a biosimilar product cannot be approved by the FDA until 12 years after the original branded product was approved under a biologics license application, or BLA. The new law is complex and is only beginning to be interpreted and implemented by the FDA. As a result, its ultimate impact, implementation and meaning is subject to uncertainty. While it is uncertain when any such processes may be fully adopted by the FDA, any such processes could have a material adverse effect on the future commercial prospects for our biological products.

We believe that any of our products approved as a biological product under a BLA should qualify for the 12-year period of exclusivity. However:

- the U.S. Congress could amend the BPCIA to significantly shorten this exclusivity period as proposed by President Obama;
- a potential competitor could seek and obtain approval of its own BLA during our exclusivity period instead of seeking approval of a biosimilar version; and
- the FDA could consider a particular product candidate, such as MM-302, which contains both drug and biological product components, to be a drug subject to review pursuant to a new drug application or, NDA, and therefore eligible for a significantly shorter marketing exclusivity period as provided under the Drug Price Competition and Patent Term Restoration Act of 1984, or the Hatch-Waxman Act.

Moreover, the extent to which a biosimilar, once approved, will be substituted for any one of our reference products in a way that is similar to traditional generic substitution for non-biological products is not yet clear and will depend on a number of marketplace and regulatory factors that are still developing.

Failure to obtain regulatory approval in international jurisdictions would prevent us from marketing our products abroad.

We intend to market our products both within and outside the United States. In particular, we plan to market and sell ourselves any products for which we receive marketing approval in the European Union, rather than relying on third parties for these capabilities. This may increase the risks described below with respect to our compliance with foreign regulations.

In order to market and sell our products in the European Union and many other jurisdictions, we must obtain separate regulatory approvals and comply with numerous and varying regulatory requirements. The approval procedure varies among countries and can involve additional testing. The time required to obtain approval in foreign countries may differ substantially from that required to obtain FDA approval. The regulatory approval process outside the United States generally includes all of the risks associated with obtaining FDA approval. In addition, in many countries outside the United States, it is required that the product be approved for reimbursement before the product can be approved for sale in that country. We may not obtain approvals from regulatory authorities outside the United States on a timely basis, if at all. Approval by the FDA does not ensure approval by regulatory authorities in other countries or jurisdictions, and approval by one regulatory authority outside the United States does not ensure approval by regulatory authorities in other countries or jurisdictions or by the FDA. We may not be able to file for regulatory approvals and may not receive necessary approvals to commercialize our products in any market.

Any product for which we obtain marketing approval could be subject to restrictions or withdrawal from the market and we may be subject to penalties if we fail to comply with regulatory requirements or if we experience unanticipated problems with our products, when and if any of them are approved.

Any product for which we obtain marketing approval, along with the manufacturing processes, post-approval clinical data, labeling, advertising and promotional activities for such product, will be subject to continual requirements of and review by the FDA and other regulatory authorities. These requirements include submissions of safety and other post-marketing information and reports, registration and listing requirements, cGMP or QSR requirements relating to quality control, quality assurance and corresponding maintenance of records and documents, requirements regarding the distribution of samples to physicians and recordkeeping. Even if regulatory approval of a product is granted, the approval may be subject to limitations on the indicated uses for which the product may be marketed or to the conditions of approval, or contain requirements for costly post-marketing testing and surveillance to monitor the safety or efficacy of the product. Later discovery of previously unknown problems with our products, manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may result in actions such as:

- restrictions on such products, manufacturers or manufacturing processes;
- restrictions on the marketing of a product;

- restrictions on product distribution;
- requirements to conduct post-marketing clinical trials;
- warning or untitled letters;
- withdrawal of the products from the market;
- refusal to approve pending applications or supplements to approved applications that we submit;
- recall of products;
- fines, restitution or disgorgement of profits or revenue;
- suspension or withdrawal of regulatory approvals;
- refusal to permit the import or export of our products;
- product seizure; or
- injunctions or the imposition of civil or criminal penalties.

Our relationships with customers and payors will be subject to applicable anti-kickback, fraud and abuse and other healthcare laws and regulations, which could expose us to criminal sanctions, civil penalties, contractual damages, reputational harm and diminished profits and future earnings.

Healthcare providers, physicians and others play a primary role in the recommendation and prescription of any products for which we obtain marketing approval. Our future arrangements with third party payors and customers may expose us to broadly applicable fraud and abuse and other healthcare laws and regulations that may constrain the business or financial arrangements and relationships through which we market, sell and distribute our products for which we obtain marketing approval. Restrictions under applicable federal and state healthcare laws and regulations, include the following:

- the federal healthcare anti-kickback statute prohibits, among other things, persons from knowingly and willfully soliciting, offering, receiving or providing remuneration, directly or indirectly, in cash or in kind, to induce or reward either the referral of an individual for, or the purchase, order or recommendation of, any good or service, for which payment may be made under federal healthcare programs such as Medicare and Medicaid;
- the federal False Claims Act imposes criminal and civil penalties, including civil whistleblower or qui tam actions, against individuals or entities for knowingly presenting, or causing to be presented, to the federal government, claims for payment that are false or fraudulent or making a false statement to avoid, decrease or conceal an obligation to pay money to the federal government;
- the federal Health Insurance Portability and Accountability Act of 1996, as amended by the Health Information Technology for Economic and Clinical Health Act, imposes criminal and civil liability for executing a scheme to defraud any healthcare benefit program and also imposes obligations, including mandatory contractual terms, with respect to safeguarding the privacy, security and transmission of individually identifiable health information;

- the federal false statements statute prohibits knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statement in connection with the delivery of or payment for healthcare benefits, items or services;

- the federal transparency requirements under the Health Care Reform Law requires manufacturers of drugs, devices, biologics and medical supplies to report to the Department of Health and Human Services information related to physician payments and other transfers of value and physician ownership and investment interests; and

- analogous state laws and regulations, such as state anti-kickback and false claims laws, may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third party payors, including private insurers, and some state laws require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government in addition to requiring manufacturers to report information related to payments to physicians and other health care providers or marketing expenditures.

Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. It is possible that governmental authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our operations are found to be in violation of any of these laws or any other governmental regulations that may apply to us, we may be subject to significant civil, criminal and administrative penalties, damages, fines, exclusion from government funded healthcare programs, such as Medicare and Medicaid, and the curtailment or restructuring of our operations. If any of the physicians or other providers or entities with whom we expect to do business with are found to be not in compliance with applicable laws, they may be subject to criminal, civil or administrative sanctions, including exclusions from government funded healthcare programs.

Recently enacted and future legislation may increase the difficulty and cost for us to obtain marketing approval of and commercialize our product candidates and affect the prices we may obtain.

In the United States and some foreign jurisdictions, there have been a number of legislative and regulatory changes and proposed changes regarding the healthcare system that could prevent or delay marketing approval of our product candidates, restrict or regulate post-approval activities and affect our ability to profitably sell any products for which we obtain marketing approval.

In the United States, the Medicare Prescription Drug, Improvement, and Modernization Act of 2003, or the Medicare Modernization Act, changed the way Medicare covers and pays for pharmaceutical products. The legislation expanded Medicare coverage for drug purchases by the elderly and introduced a new reimbursement methodology based on average sales prices for physician administered drugs. In addition, this legislation provided authority for limiting the number of drugs that will be covered in any therapeutic class. Cost reduction initiatives and other provisions of this legislation could decrease the coverage and price that we receive for any approved products. While the Medicare Modernization Act applies only to drug benefits for Medicare beneficiaries, private payors often follow Medicare coverage policy and payment limitations in setting their own reimbursement rates. Therefore, any reduction in

reimbursement that results from the Medicare Modernization Act may result in a similar reduction in payments from private payors.

More recently, in March 2010, President Obama signed into law the Health Care Reform Law, a sweeping law intended to broaden access to health insurance, reduce or constrain the growth of healthcare spending, enhance remedies against fraud and abuse, add new transparency requirements for health care and health insurance industries, impose new taxes and fees on the health industry and impose additional health policy reforms. Effective October 1, 2010, the Health Care Reform Law revises the definition of "average manufacturer price" for reporting purposes, which could increase the amount of Medicaid drug rebates to states. Further, the new law imposes a significant annual fee on companies that manufacture or import branded prescription drug products. Substantial new provisions affecting compliance have also been enacted, which may affect our business practices with health care practitioners. We will not know the full effects of the Health Care Reform Law until applicable federal and state agencies issue regulations or guidance under the new law. Although it is too early to determine the effect of the Health Care Reform Law, the new law appears likely to continue the pressure on pharmaceutical pricing, especially under the Medicare program, and may also increase our regulatory burdens and operating costs.

Legislative and regulatory proposals have been made to expand post-approval requirements and restrict sales and promotional activities for pharmaceutical products. We are not sure whether additional legislative changes will be enacted, or whether the FDA regulations, guidance or interpretations will be changed, or what the impact of such changes on the marketing approvals of our product candidates, if any, may be. In the area of companion diagnostics, we are awaiting the issuance of two guidances from the FDA, which could affect our development of companion diagnostics. In addition, increased scrutiny by the U.S. Congress of the FDA's approval process may significantly delay or prevent marketing approval, as well as subject us to more stringent product labeling and post-marketing testing and other requirements.

Risks related to employee matters and managing growth

Our future success depends on our ability to retain our chief executive officer and other key executives and to attract, retain and motivate qualified personnel.

We are highly dependent on Robert J. Mulroy, our President and Chief Executive Officer, and the other principal members of our executive and scientific teams. Although we have formal employment agreements with each of our executive officers, these agreements do not prevent our executives from terminating their employment with us at any time. We do not maintain "key person" insurance for any of our executives or other employees. The loss of the services of any of these persons could impede the achievement of our research, development and commercialization objectives.

Recruiting and retaining qualified scientific, clinical, manufacturing and sales and marketing personnel will also be critical to our success. We may not be able to attract and retain these personnel on acceptable terms given the competition among numerous pharmaceutical and biotechnology companies for similar personnel. We also experience competition for the hiring of scientific and clinical personnel from universities and research institutions. In addition, we rely on consultants and advisors, including scientific and clinical advisors, to assist us in formulating our research and development and commercialization strategy. Our consultants

and advisors may be employed by employers other than us and may have commitments under consulting or advisory contracts with other entities that may limit their availability to us.

We expect to expand our development, regulatory and sales and marketing capabilities, and as a result, we may encounter difficulties in managing our growth, which could disrupt our operations.

We expect to experience significant growth in the number of our employees and the scope of our operations, particularly in the areas of drug development, regulatory affairs and sales and marketing. To manage our anticipated future growth, we must continue to implement and improve our managerial, operational and financial systems, expand our facilities and continue to recruit and train additional qualified personnel. Due to our limited financial resources and the limited experience of our management team in managing a company with such anticipated growth, we may not be able to effectively manage the expansion of our operations or recruit and train additional qualified personnel. The physical expansion of our operations may lead to significant costs and may divert our management and business development resources. Any inability to manage growth could delay the execution of our business plans or disrupt our operations.

We have entered into and may continue to enter into or seek to enter into business combinations and acquisitions which may be difficult to integrate, disrupt our business, divert management attention or dilute stockholder value.

As part of our business strategy, we may enter into business combinations and acquisitions. Although we acquired Hermes BioSciences, Inc., or Hermes, in October 2009, we have limited experience in making acquisitions. In addition, acquisitions are typically accompanied by a number of risks, including:

- the difficulty of integrating the operations and personnel of the acquired companies;
- the potential disruption of our ongoing business and distraction of management;
- potential unknown liabilities and expenses;
- the failure to achieve the expected benefits of the combination or acquisition;
- the maintenance of acceptable standards, controls, procedures and policies; and
- the impairment of relationships with employees as a result of any integration of new management and other personnel.

If we are not successful in completing acquisitions that we may pursue in the future, we would be required to reevaluate our business strategy and we may have incurred substantial expenses and devoted significant management time and resources in seeking to complete the acquisitions. In addition, with future acquisitions, we could use substantial portions of our available cash as all or a portion of the purchase price. As we did for the acquisition of Hermes, we could also issue additional securities as consideration for these acquisitions, which could cause our stockholders to suffer significant dilution.

Risks related to our common stock and this offering

After this offering, our executive officers, directors and principal stockholders will maintain the ability to control all matters submitted to stockholders for approval.

Upon the closing of this offering, our executive officers, directors and stockholders who owned more than 5% of our outstanding common stock before this offering will, in the aggregate, beneficially own shares representing approximately % of our capital stock. As a result, if these stockholders were to choose to act together, they would be able to control all matters submitted to our stockholders for approval, as well as our management and affairs. For example, these persons, if they choose to act together, will control the election of directors and approval of any merger, consolidation or sale of all or substantially all of our assets. This concentration of voting power could delay or prevent an acquisition of our company on terms that other stockholders may desire.

Provisions in our corporate charter documents and under Delaware law could make an acquisition of us, which may be beneficial to our stockholders, more difficult and may prevent attempts by our stockholders to replace or remove our current management.

Provisions in our corporate charter and our bylaws that will become effective upon the closing of this offering may discourage, delay or prevent a merger, acquisition or other change in control of us that stockholders may consider favorable, including transactions in which you might otherwise receive a premium for your shares. These provisions could also limit the price that investors might be willing to pay in the future for shares of our common stock, thereby depressing the market price of our common stock. In addition, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors. Because our board of directors is responsible for appointing the members of our management team, these provisions could in turn affect any attempt by our stockholders to replace current members of our management team. Among others, these provisions:

- establish a classified board of directors such that not all members of the board are elected at one time;
- allow the authorized number of our directors to be changed only by resolution of our board of directors;
- limit the manner in which stockholders can remove directors from the board;
- establish advance notice requirements for stockholder proposals that can be acted on at stockholder meetings and nominations to our board of directors;
- require that stockholder actions must be effected at a duly called stockholder meeting and prohibit actions by our stockholders by written consent;
- limit who may call stockholder meetings;
- authorize our board of directors to issue preferred stock without stockholder approval, which could be used to institute a "poison pill" that would work to dilute the stock ownership of a potential hostile acquirer, effectively preventing acquisitions that have not been approved by our board of directors; and
- require the approval of the holders of at least 75% of the votes that all our stockholders would be entitled to cast to amend or repeal certain provisions of our charter or bylaws.

Moreover, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which prohibits a person who owns in excess of 15% of our outstanding voting stock from merging or combining with us for a period of three years after the date of the transaction in which the person acquired in excess of 15% of our outstanding voting stock, unless the merger or combination is approved in a prescribed manner.

If you purchase shares of common stock in this offering, you will suffer immediate dilution of your investment.

The initial public offering price of our common stock is substantially higher than the net tangible book value per share of our common stock. Therefore, if you purchase shares of our common stock in this offering, you will pay a price per share that substantially exceeds our net tangible book value per share after this offering. To the extent outstanding options or warrants are exercised, you will incur further dilution. Based on an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, you will experience immediate dilution of $ per share, representing the difference between our pro forma net tangible book value per share after giving effect to this offering and the assumed initial public offering price. In addition, purchasers of common stock in this offering will have contributed approximately % of the aggregate price paid by all purchasers of our stock but will own only approximately % of our common stock outstanding after this offering.

An active trading market for our common stock may not develop.

Prior to this offering, there has been no public market for our common stock. The initial public offering price for our common stock will be determined through negotiations with the underwriters. Although we are applying for listing of our common stock on The NASDAQ Global Market, an active trading market for our shares may never develop or be sustained following this offering. If an active market for our common stock does not develop, it may be difficult for you to sell shares you purchase in this offering without depressing the market price for the shares or at all.

If our stock price is volatile, purchasers of our common stock could incur substantial losses.

Our stock price is likely to be volatile. The stock market in general and the market for biotechnology companies in particular have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. As a result of this volatility, investors may not be able to sell their common stock at or above the initial public offering price. The market price for our common stock may be influenced by many factors, including:

- the success of competitive products or technologies;
- results of clinical trials of our product candidates or those of our competitors;
- regulatory or legal developments in the United States and other countries;
- developments or disputes concerning patents or other proprietary rights;
- the recruitment or departure of key personnel;
- variations in our financial results or those of companies that are perceived to be similar to us;

- changes in the structure of healthcare payment systems;
- market conditions in the pharmaceutical and biotechnology sectors and issuance of new or changed securities analysts' reports or recommendations;
- general economic, industry and market conditions; and
- the other factors described in this "Risk factors" section.

We have broad discretion in the use of the net proceeds from this offering and may not use them effectively.

We will use approximately $4.3 million of the net proceeds from this offering to pay accrued dividends on our series B convertible preferred stock. Our management will have broad discretion in the application of the balance of the net proceeds from this offering and could spend the proceeds in ways that do not improve our results of operations or enhance the value of our common stock. The failure by our management to apply these funds effectively could result in financial losses that could have a material adverse effect on our business, cause the price of our common stock to decline and delay the development of our product candidates. Pending their use, we may invest the net proceeds from this offering in a manner that does not produce income or that loses value.

Because we do not anticipate paying any cash dividends on our common stock in the foreseeable future, capital appreciation, if any, will be your sole source of gain.

We have never declared or paid cash dividends on our common stock. We currently intend to retain all of our future earnings, if any, to finance the growth and development of our business. In addition, the terms of existing or any future debt agreements may preclude us from paying dividends. As a result, capital appreciation, if any, of our common stock will be your sole source of gain for the foreseeable future.

A significant portion of our total outstanding shares are restricted from immediate resale but may be sold into the market in the near future. This could cause the market price of our common stock to drop significantly, even if our business is doing well.

Sales of a substantial number of shares of our common stock in the public market could occur at any time. These sales, or the perception in the market that the holders of a large number of shares intend to sell shares, could reduce the market price of our common stock. After this offering, we will have outstanding shares of common stock based on the number of shares outstanding as of May 31, 2011. This includes the shares that we are selling in this offering, which may be resold in the public market immediately without restriction, unless purchased by our affiliates. Of the remaining shares, shares are currently restricted as a result of securities laws or lock-up agreements but will be able to be sold after the offering as described in the "Shares eligible for future sale" section of this prospectus. Moreover, after this offering, holders of an aggregate of shares of our common stock will have rights, subject to some conditions, to require us to file registration statements covering their shares or to include their shares in registration statements that we may file for ourselves or other stockholders. We also intend to register all shares of common stock that we may issue under our equity compensation plans. Once we register these shares, they can be freely sold in the public market upon issuance, subject to volume limitations applicable to affiliates and the lock-up agreements described in the "Underwriting" section of this prospectus.

Special note regarding forward-looking statements

This prospectus contains forward-looking statements that involve substantial risks and uncertainties. All statements, other than statements of historical facts, contained in this prospectus, including statements regarding our strategy, future operations, future financial position, future revenues, projected costs, prospects, plans and objectives of management, are forward-looking statements. The words "anticipate," "believe," "estimate," "expect," "intend," "may," "plan," "predict," "project," "target," "potential," "will," "would," "could," "should," "continue" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words.

The forward-looking statements in this prospectus include, among other things, statements about:

- our plans to develop and commercialize our most advanced product candidates and companion diagnostics;
- our ongoing and planned discovery programs, preclinical studies and clinical trials;
- our collaboration with Sanofi related to MM-121;
- our ability to establish and maintain additional collaborations;
- the timing of and our ability to obtain and maintain regulatory approvals for our product candidates;
- the rate and degree of market acceptance and clinical utility of our products;
- our intellectual property position;
- our commercialization, marketing and manufacturing capabilities and strategy;
- the potential advantages of our Network Biology approach to drug research and development;
- the potential use of our Network Biology approach in fields other than oncology; and
- our estimates regarding expenses, future revenues, capital requirements and needs for additional financing.

We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements we make. We have included important factors in the cautionary statements included in this prospectus, particularly in the "Risk factors" section, that we believe could cause actual results or events to differ materially from the forward-looking statements that we make. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures or investments we may make.

You should read this prospectus and the documents that we reference in this prospectus and have filed as exhibits to the registration statement of which this prospectus is a part completely and with the understanding that our actual future results may be materially different from what we expect. We do not assume any obligation to update any forward-looking statements.

Use of proceeds

We estimate that the net proceeds from our issuance and sale of shares of our common stock in this offering will be approximately $ million, assuming an initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. If the underwriters exercise their over-allotment option in full, we estimate that the net proceeds from this offering will be approximately $ million.

A $1.00 increase (decrease) in the assumed initial public offering price of $ per share would increase (decrease) the net proceeds from this offering by approximately $ million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting the estimated underwriting discounts and commissions.

As of , 2011, we had cash and cash equivalents of approximately $ million. We will use approximately $4.3 million of the net proceeds from this offering to pay accrued dividends on our series B convertible preferred stock. We currently estimate that we will use the balance of the net proceeds from this offering, together with our cash and cash equivalents as of , 2011, as follows:

- approximately $ million to fund our ongoing clinical program for MM-398, including approximately $15.0 million to $20.0 million of external costs for our planned Phase 3 clinical trial in metastatic pancreatic cancer, and to seek marketing approval and begin commercialization activities for MM-398 in the United States;
- approximately $ million to fund our ongoing clinical program for MM-111;
- approximately $ million to fund our ongoing clinical program for MM-302;
- approximately $ million to fund our preclinical and clinical programs for MM-151;
- approximately $ million to fund other research and development efforts, including beginning human clinical trials for new compounds; and
- the balance, if any, to fund working capital, capital expenditures and other general corporate purposes, which may include the acquisition or licensing of other products, businesses or technologies.

This expected use of the net proceeds from this offering and our existing cash and cash equivalents represents our intentions based upon our current plans and business conditions. The amounts and timing of our actual expenditures may vary significantly depending on numerous factors, including the progress of our development and commercialization efforts, the status of and results from clinical trials, as well as any collaborations that we may enter into with third parties for our product candidates, and any unforeseen cash needs. As a result, our management will retain broad discretion over the allocation of the net proceeds from this offering. We have no current understandings, agreements or commitments for any material acquisitions or licenses of any products, businesses or technologies.

Based on our planned use of the net proceeds from this offering and our existing cash and cash equivalents described above, we expect that such funds will be sufficient to enable us to complete the planned Phase 3 clinical trial of MM-398 in metastatic pancreatic cancer and, if the results of this Phase 3 clinical trial are favorable, to seek marketing approval and begin commercialization activities for MM-398 in the United States. However, it is possible that we will not achieve the progress that we expect because the actual costs and timing of development, particularly clinical trials, are difficult to predict, subject to substantial risks and delays and often vary depending on the particular indication and development strategy. Sanofi is responsible for all development and manufacturing costs under our collaboration for the development and commercialization of MM-121. We do not expect that the net proceeds from this offering and our existing cash and cash equivalents will be sufficient to enable us to fund the completion of development of any of our other product candidates.

Pending our use of the net proceeds from this offering, we intend to invest the net proceeds in a variety of capital preservation investments, including short-term, investment grade, interest bearing instruments and U.S. government securities.

Dividend policy

We have never declared or paid cash dividends on our common stock. We currently intend to retain all of our future earnings, if any, to finance the growth and development of our business. We do not intend to pay cash dividends to holders of our common stock in the foreseeable future.

Capitalization

The following table sets forth our cash and cash equivalents and capitalization as of March 31, 2011:

- on an actual basis;
- on a pro forma basis to give effect to:
    - our issuance and sale in April 2011 of an aggregate of 11,000,000 shares of our series G convertible preferred stock at a price per share of $7.00 for an aggregate purchase price of $77.0 million;
    - the automatic conversion of all outstanding shares of our preferred stock, including the series G convertible preferred stock that we issued in April 2011, into an aggregate of 66,253,812 shares of our common stock upon the closing of this offering;
    - the reclassification of convertible preferred stock warrant liability to common stock warrants for warrants to purchase our preferred stock that will automatically become warrants to purchase an aggregate of 304,506 shares of our common stock upon the closing of this offering; and
    - the accrual of series B convertible preferred stock dividends of approximately $4,263,000; and
- on a pro forma as adjusted basis to give further effect to:
    - our issuance and sale of shares of our common stock in this offering at an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us; and
    - our use of approximately $4,263,000 of the net proceeds from this offering to pay accrued dividends on our series B convertible preferred stock.

Our capitalization following the closing of this offering will be adjusted based on the actual initial public offering price and other terms of this offering determined at pricing. You should read this table together with our consolidated financial statements and the related notes appearing at the end of this prospectus and the "Management's discussion and analysis of financial condition and results of operations" section of this prospectus.

As of March 31, 2011 (in thousands, except par values amounts)	Actual	Pro forma	Pro forma as adjusted
		(unaudited)	
Cash and cash equivalents	$ 32,595	$ 97,087	$
Convertible preferred stock warrants liability	$ 1,368	$ —	$
Series G proceeds liability	12,508	—	
Accrued dividends	—	4,263	
Non-controlling Interest	$ 949	$ 949	$
Convertible preferred stock, $0.01 par value per share:			
Series B convertible preferred stock: 6,000 shares authorized, 3,874 shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	14,046	—	
Series C convertible preferred stock: 15,100 shares authorized, 14,422 shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	24,447	—	
Series D convertible preferred stock: 11,500 shares authorized, 8,086 shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	28,267	—	
Series E convertible preferred stock: 15,000 shares authorized, 14,991 shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	64,531	—	
Series F convertible preferred stock: 15,680 shares authorized, 11,776 shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	59,973	—	
Total convertible preferred stock	191,264	—	
Stockholders' (deficit) equity:			
Common stock, $0.01 par value per share: 125,000 shares authorized, 11,215 shares issued and outstanding, actual; 125,000 shares authorized, 77,469 shares issued and outstanding, pro forma; and 125,000 shares authorized, shares issued and outstanding, pro forma as adjusted	112	775	
Additional paid-in capital	46,163	309,501	
Common stock warrants	6,445	7,813	
Accumulated deficit	(285,073)	(285,073)	
Total stockholders' (deficit) equity	(232,353)	33,016	
Total capitalization	$ (40,140)	$ 33,965	$

A $1.00 increase (decrease) in the assumed initial public offering price of $ per share would increase (decrease) each of cash and cash equivalents, additional paid-in capital, total stockholders' (deficit) equity and total capitalization on a pro forma as adjusted basis by approximately $ mill ion, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions.

The table above does not include:

- 15,939,157 shares of our common stock issuable upon the exercise of stock options outstanding as of March 31, 2011 at a weighted average exercise price of $2.10 per share;
- 333,147 additional shares of our common stock available for future issuance as of March 31, 2011 under our 2008 stock incentive plan;
- additional shares of our common stock available for future issuance, as of the closing of this offering, under our 2011 stock incentive plan; and
- 3,241,555 shares of our common stock issuable upon the exercise of warrants outstanding as of March 31, 2011 at a weighted average exercise price of $2.98 per share.

Dilution

If you invest in our common stock in this offering, your ownership interest will be diluted immediately to the extent of the difference between the public offering price per share of our common stock and the pro forma net tangible book value per share of our common stock after this offering.

Our historical net tangible book value as of March 31, 2011 was $ million, or $ per share of our common stock. Historical net tangible book value per share represents the amount of our total tangible assets less total liabilities, divided by the number of shares of our common stock outstanding.

Our pro forma net tangible book value as of March 31, 2011 was $ million, or $ per share of our common stock. Pro forma net tangible book value per share represents the amount of our total tangible assets less our total liabilities, divided by the pro forma number of shares of our common stock outstanding after giving effect to our issuance and sale in April 2011 of an aggregate of 11,000,000 shares of our series G convertible preferred stock at a price per share of $7.00 for an aggregate purchase price of $77.0 million, the automatic conversion of all outstanding shares of our preferred stock, including the series G convertible preferred stock that we issued in April 2011, into an aggregate of 66,253,812 shares of our common stock upon the closing of this offering, the reclassification of convertible preferred stock warrant liability to common stock warrants for warrants to purchase our preferred stock that will automatically become warrants to purchase an aggregate of 304,506 shares of our common stock upon the closing of this offering and the accrual of series B convertible preferred stock dividends of approximately $4,263,000.

After giving effect to our issuance and sale of shares of our common stock in this offering at an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, and our use of approximately $4,263,000 of the net proceeds from this offering to pay accrued dividends on our series B convertible preferred stock, our pro forma net tangible book value as of March 31, 2011 would have been $ mill ion, or $ per share. This represents an immediate increase in pro forma net tangible book value per share of $ to existing stockholders and immediate dilution of $ in pro forma net tangible book value per share to new investors purchasing common stock in this offering.

Dilution per share to new investors is determined by subtracting pro forma net tangible book value per share after this offering from the initial public offering price per share paid by new investors. The following table illustrates this dilution on a per share basis:

Assumed initial public offering price per share		$
Historical net tangible book value per share as of March 31, 2011	$	
Increase attributable to the conversion of outstanding preferred stock		
Pro forma net tangible book value per share as of March 31, 2011		
Increase in net tangible book value per share attributable to new investors		
Pro forma net tangible book value per share after this offering		
Dilution per share to new investors		$

A $1.00 increase (decrease) in the assumed initial public offering price of $ per share would increase (decrease) our pro forma net tangible book value by approximately $, our pro forma net tangible book value per share by approximately $ and dilution per share to new investors by approximately $, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions.

If the underwriters exercise their over-allotment option or if any additional shares are issued in connection with outstanding options or warrants, you will experience further dilution.

The following table summarizes, on a pro forma basis as of March 31, 2011, the total number of shares purchased from us, the total consideration paid, or to be paid, and the average price per share paid, or to be paid, by existing stockholders and by new investors in this offering at an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, before deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. As the table shows, new investors purchasing shares in this offering will pay an average price per share substantially higher than our existing stockholders paid.

	Shares purchased		Total consideration		Average price per share
	Number	Percent	Amount	Percent	
Existing stockholders		%	$	%	$
New investors					
Total		100%	$	100%	

A $1.00 increase (decrease) in the assumed initial public offering price of $ per share would increase (decrease) the total consideration paid by new investors by $ mill ion and increase (decrease) the percentage of total consideration paid by new investors by approximately %, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same.

The table above is based on actual shares outstanding as of March 31, 2011 and 66,253,812 additional shares of our common stock issuable upon the automatic conversion of all outstanding shares of our preferred stock, including the series G convertible preferred stock that we issued in April 2011, upon the closing of this offering.

The table above excludes:

- 15,939,157 shares of our common stock issuable upon the exercise of stock options outstanding as of March 31, 2011 at a weighted average exercise price of $2.10 per share;
- 333,147 additional shares of our common stock available for future issuance as of March 31, 2011 under our 2008 stock incentive plan;
- additional shares of our common stock available for future issuance, as of the closing of this offering under our 2011 stock incentive plan; and
- 3,241,555 shares of our common stock issuable upon the exercise of warrants outstanding as of March 31, 2011 at a weighted average exercise price of $2.98 per share.

If the underwriters exercise their over-allotment option in full, the following will occur:

- the percentage of shares of our common stock held by existing stockholders will decrease to approximately % of the total number of shares of our common stock outstanding after this offering; and
- the number of shares of our common stock held by new investors will increase to , or approximately % of the total number of shares of our common stock outstanding after this offering.

Selected consolidated financial data

You should read the following selected consolidated financial data together with our consolidated financial statements and the related notes appearing at the end of this prospectus and the "Management's discussion and analysis of financial condition and results of operations" section of this prospectus. We have derived the consolidated statements of operations data for the years ended December 31, 2008, 2009 and 2010 and the consolidated balance sheet data as of December 31, 2009 and 2010 from our audited consolidated financial statements included in this prospectus. We have derived the consolidated statements of operations data for the years ended December 31, 2006 and 2007 and the consolidated balance sheet data as of December 31, 2006, 2007 and 2008 from our audited consolidated financial statements not included in this prospectus. We have derived the consolidated statements of operations data for the three months ended March 31, 2010 and 2011 and the consolidated balance sheet data as of March 31, 2011 from our unaudited consolidated financial statements included in this prospectus. The unaudited consolidated financial data include, in the opinion of our management, all adjustments, consisting only of normal recurring adjustments, that are necessary for a fair statement of our financial position and results of operations for these periods. Our historical results for any prior period are not necessarily indicative of results to be expected in any future period, and our results for any interim period are not necessarily indicative of results to be expected for a full fiscal year.

(in thousands, except per share amounts)	Year ended December 31,					Three months ended March 31,	
	2006	2007	2008	2009(1)	2010(2)	2010	2011(2)
						(unaudited)	
Consolidated statement of operations							
Research and development revenues	$ 94	$ 344	$ 365	$ 2,148	$ 20,305	$ 3,969	$ 6,461
Operating expenses:							
Research and development	21,047	26,109	34,528	37,658	58,278	13,415	18,001
General and administrative	5,597	6,482	8,836	12,178	11,381	2,453	3,101
Contingent consideration	—	—	—	—	(178)	—	—
Total operating expenses	26,644	32,591	43,364	49,836	69,481	15,868	21,102
Loss from operations	(26,550)	(32,247)	(42,999)	(47,688)	(49,176)	(11,899)	(14,641)
Other income and expenses:							
Interest income	2,778	2,305	1,243	81	74	14	14
Interest expense	(1,223)	(1,710)	(4,403)	(4,909)	(3,726)	(1,201)	(6)
Other, net	(183)	(37)	607	41	2,669	22	1,098
Net loss before income taxes and non-controlling interest	(25,178)	(31,689)	(45,552)	(52,475)	(50,159)	(13,064)	(13,535)
Benefit from income taxes	—	—	—	3,402	—	—	—
Net loss before non-controlling interest	(25,178)	(31,689)	(45,552)	(49,073)	(50,159)	(13,064)	(13,535)
Less net loss attributable to non-controlling interest	—	—	—	—	(55)	—	(78)
Net loss attributable to Merrimack Pharmaceuticals, Inc.	(25,178)	(31,689)	(45,552)	(49,073)	(50,104)	(13,064)	(13,457)
Net loss per share available to common stockholders—basic and diluted(3)	$ (4.84)	$ (6.01)	$ (8.17)	$ (7.28)	$ (5.57)	$ (1.31)	$ (1.35)
Weighted-average common shares used in computing net loss per share available to common stockholders—basic and diluted	6,147	6,177	6,199	7,387	10,994	10,868	11,106
Pro forma net loss per share available to common stockholders—basic and diluted (unaudited)(4)					$		$
Weighted-average common shares used in computing pro forma net loss per share available to common stockholders—basic and diluted (unaudited)(5)							

(1) In 2009, we acquired Hermes BioSciences, Inc. See Note 6 to our consolidated financial statements.

(2) In 2010 and 2011, we consolidated Silver Creek Pharmaceuticals, Inc. for financial reporting purposes.

(3) The numerator in the calculation of net loss per share available to common stockholders—basic and diluted includes unaccreted dividends on our convertible preferred stock.

(4) The numerator in the calculation of pro forma net loss per share available to common stockholders—basic and diluted has been adjusted to remove gains and losses resulting from re-measurement of the preferred stock warrant liabilities.

(5) Pro forma net loss per share available to common stockholders—basic and diluted is calculated assuming the automatic conversion of all outstanding shares of our preferred stock, including the series G convertible preferred stock that we issued in April 2011, into an aggregate of 66,253,812 shares of our common stock upon the closing of this offering and adjusted to reflect additional shares of common stock related to preferred stock dividends of approximately $4,263,000.

(in thousands)	As of December 31, 2006	2007	2008	2009	2010	As of March 31, 2011 (unaudited)
Consolidated balance sheet data						
Cash and cash equivalents	$ 19,887	$ 40,286	$ 44,974	$ 58,387	$ 30,713	$ 32,595
Total assets	61,400	67,312	50,867	82,156	57,577	64,901
Deferred revenue	—	—	—	60,937	73,782	79,564
Convertible preferred stock warrants liability	1,061	1,082	568	578	652	1,368
Total liabilities	12,277	45,996	72,596	141,645	85,257	105,041
Non-controlling interest	—	—	—	—	1,027	949
Convertible preferred stock	130,280	132,739	132,739	131,273	191,257	191,264
Total stockholders deficit	$ (81,157)	$ (111,423)	$ (154,468)	$ (190,762)	$ (219,964)	$ (232,353)

Management's discussion and analysis of financial condition and results of operations

You should read the following discussion and analysis of our financial condition and results of operations together with our consolidated financial statements and the related notes appearing at the end of this prospectus. Some of the information contained in this discussion and analysis or set forth elsewhere in this prospectus, including information with respect to our plans and strategy for our business and related financings, includes forward-looking statements that involve risks and uncertainties. You should read the "Risk factors" section of this prospectus for a discussion of important factors that could cause actual results to differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis.

Overview

We are a biopharmaceutical company discovering, developing and preparing to commercialize innovative medicines consisting of novel therapeutics paired with companion diagnostics. Our mission is to provide patients, physicians and the healthcare system with the tools, medicines and information to transform the approach to care from one based on the identification and treatment of symptoms to one focused on the diagnosis and treatment of illness through a more precise mechanistic understanding of disease. We seek to accomplish our mission by applying our proprietary systems-based approach to biomedical research, which we call Network Biology. Our initial focus is in the field of oncology. We have four programs in clinical development, the most advanced of which is expected to enter a pivotal Phase 3 clinical trial in the fourth quarter of 2011.

We have devoted substantially all of our resources to our drug discovery and development efforts, including advancing our Network Biology approach, conducting clinical trials for our product candidates, protecting our intellectual property and providing general and administrative support for these operations. We have not generated any revenue from product sales and, to date, have financed our operations primarily through private placements of our convertible preferred stock, collaborations and, to a lesser extent, through government grants, the monetization of tax credits and equipment lease financings. Through March 31, 2011, we have received $191.3 million from the sale of convertible preferred stock and warrants and $98.1 million of upfront license fees, milestone payments, reimbursement of research and development costs and manufacturing services and other payments from our collaborations. In April 2011, we raised additional proceeds of $77.0 million from the sale of our series G convertible preferred stock. We expect that the net proceeds from this offering, together with our existing cash and cash equivalents, including the proceeds of our series G financing, anticipated interest income and anticipated milestone payments and research and development and manufacturing funding under our collaboration with Sanofi related to MM-121, will enable us to fund our operating expenses and capital expenditure requirements through at least .

We have never been profitable and, as of March 31, 2011, we had an accumulated deficit of $285.1 million. Our net loss was $13.5 million for the three months ended March 31, 2011, $50.2 million for the year ended December 31, 2010, $49.1 million for the year ended December 31, 2009 and $45.6 million for the year ended December 31, 2008. We expect to

continue to incur significant expenses and increasing operating losses for at least the next several years. We expect our research and development expenses to increase in connection with our ongoing activities, particularly as we continue the research, development and clinical trials of our product candidates, including multiple simultaneous clinical trials for certain product candidates, some of which we expect will be entering late stage clinical development. In addition, subject to obtaining regulatory approval of any of our product candidates, we expect to incur significant commercialization expenses for product sales, marketing, manufacturing and distribution. We will need substantial additional funding to support the continuation of our operating activities. Until such time, if ever, as we can generate substantial product revenues, we expect to finance our cash needs through a combination of equity offerings, debt financings, collaborations, strategic alliances, licensing arrangements and other marketing and distribution arrangements. We may be unable to raise capital when needed or on attractive terms, which would force us to delay, limit, reduce or terminate our research and development programs or commercialization efforts. We will need to generate significant revenues to achieve profitability, and we may never do so.

Strategic partnerships, licenses and collaborations

Sanofi

In September 2009, we entered into a license and collaboration with Sanofi for the development and commercialization of MM-121. Under this agreement, we granted Sanofi an exclusive, royalty-bearing, worldwide right and license to develop and commercialize MM-121 in exchange for payment by Sanofi of an upfront license fee of $60.0 million, up to $410.0 million in potential development and regulatory milestone payments, of which we have already received $10.0 million, up to $60.0 million in potential sales milestone payments and tiered, escalating royalties beginning in the low double digits based on net sales of MM-121 in the United States and beginning in the high single digits based on net sales of MM-121 outside the United States. We have the option to co-promote and commercialize MM-121 in the United States and the right, but not the obligation, to participate in the development of MM-121 through Phase 2 proof of concept trials, which we are currently conducting. If we co-promote MM-121 in the United States, we will be responsible for paying our sales force costs and a specified percentage of direct medical affairs, marketing and promotion costs for MM-121 in the United States and will be eligible to receive tiered, escalating royalties beginning in the high teens based on net sales of MM-121 in the United States. We are also entitled to an increase in the royalty rate if a diagnostic product is actually used with MM-121 in the treatment of solid tumor indications. Sanofi is responsible for all development and manufacturing costs for MM-121. Although Sanofi is responsible for manufacturing MM-121 under the agreement, we are currently manufacturing MM-121 and plan to continue doing so until material is needed for Phase 3 clinical trials, at which time we expect Sanofi will assume primary responsibility for all manufacturing of MM-121. Sanofi reimburses us for internal time at a designated full-time equivalent rate per year and reimburses us for direct costs and services related to the development and manufacturing of MM-121.

The timing of cash received from Sanofi differs from revenue recognized for financial statement purposes. We recognize revenue for development services as incurred and recognize revenue for the upfront payment, milestone payments and manufacturing services using the contingency-adjusted performance model over the expected development period, which is currently estimated to be 12 years from the effective date of our agreement with Sanofi.

During the years ended December 31, 2009 and 2010, and the three months ended March 31, 2010 and 2011, we recognized revenue based on the following components of the Sanofi agreement:

	Year ended December 31,		Three months ended March 31,	
(in thousands)	**2009**	**2010**	**2010**	**2011**
Upfront payment	$ 694	$ 5,000	$ 1,250	$ 1,250
Milestone payment	—	949	—	208
Development services	1,410	13,279	2,362	4,705
Manufacturing services and other	—	630	34	255
Total	**$ 2,104**	**$ 19,858**	**$ 3,646**	**$ 6,418**

GTC Biotherapeutics, Inc.

During 2008 and 2009, our product candidate MM-093 failed to achieve the primary endpoint in Phase 2 clinical trials for rheumatoid arthritis, psoriasis and uveitis. In July 2009, we entered into a license agreement with GTC Biotherapeutics, Inc., or GTC, for the development and commercialization of MM-093. Under this agreement, we granted GTC an exclusive worldwide license to research, develop, manufacture and commercialize MM-093 for the treatment of autoimmune diseases in exchange for GTC returning approximately 662,000 shares of our series C convertible preferred stock. In addition, we are eligible to receive from GTC potential development and sales milestone payments and tiered royalties based on net sales of MM-093. GTC is responsible for all development and commercialization costs for MM-093. We assigned a fair value of $1.5 million for the shares returned to us and are recognizing this as revenue over the expected development term, which is currently estimated to be 19 years from the effective date of our agreement with GTC. We have not received any milestone or royalty payments from GTC.

During the years ended December 31, 2009 and 2010, and the three months ended March 31, 2010 and 2011, we recognized revenue based on the following components of the GTC agreement:

	Year ended December 31,		Three months ended March 31,	
(in thousands)	**2009**	**2010**	**2010**	**2011**
Upfront consideration	$ 37	$ 76	$ 19	$ 19

Silver Creek Pharmaceuticals, Inc.

We have established a subsidiary named Silver Creek Pharmaceuticals, Inc., or Silver Creek. Silver Creek's mission is to apply our Network Biology approach to the discovery and development of innovative therapeutics in the field of regenerative medicine. In August 2010, we acquired 12,000,000 shares of Silver Creek's series A convertible preferred stock in exchange for our grant to Silver Creek of various exclusive and non-exclusive technology licenses. In August and December 2010, Silver Creek issued an aggregate of 4,189,904 additional shares of series A convertible preferred stock at a price per share of $1.00 to other investors for an aggregate purchase price of approximately $4,165,000, net of issuance costs. As of

December 31, 2010 and March 31, 2011, we owned approximately 74% of the outstanding capital stock of Silver Creek and consolidated Silver Creek for financial reporting.

In the future, we may consider forming additional businesses or business units to apply our Network Biology approach to multiple additional disease areas outside the oncology field. We expect to do so in some cases, as with Silver Creek, through the establishment of separately funded companies.

Financial obligations related to the license and development of MM-398

In September 2005, Hermes BioSciences, Inc., or Hermes, which we acquired in October 2009, entered into a license agreement with PharmaEngine, Inc., or PharmaEngine, under which PharmaEngine received an exclusive license to research, develop, manufacture and commercialize MM-398 in major European and Asian markets. In May 2011, we entered into a new agreement with PharmaEngine under which we reacquired all previously licensed rights for MM-398, other than rights to commercialize MM-398 in Taiwan. As a result, we now have the exclusive right to commercialize MM-398 in all territories in the world, except for Taiwan, where PharmaEngine has an exclusive commercialization right. Upon entering into the May 2011 agreement with PharmaEngine, we paid PharmaEngine a $10.0 million upfront license fee. In addition, we will be required to make a milestone payment to PharmaEngine of $5.0 million in connection with dosing the first patient in our planned Phase 3 clinical trial of MM-398, which we expect to occur in the fourth quarter of 2011. We are required to make up to an aggregate of $205.0 million in additional milestone payments upon the achievement of specified development, regulatory and annual net sales milestones. PharmaEngine is also entitled to tiered royalties on net sales of MM-398 in Europe and certain countries in Asia. The royalty rates under the agreement range from high single digits up to the low teens as a percentage of our net sales of MM-398 in these territories. Under the May 2011 agreement, we are responsible for all future development costs of MM-398 outside of Taiwan.

Our financial obligations under other license and development agreement are summarized below under "—Liquidity and capital resources—Contractual obligations and commitments."

Financial operations overview

Revenues

We have not yet generated any revenue from product sales. All of our revenue to date has been derived from license fees, milestone payments and research, development, manufacturing and other payments received from collaborations, primarily with Sanofi, and grant payments received from the National Cancer Institute. In the future, we may generate revenue from a combination of product sales, license fees, milestone payments and research, development and manufacturing payments from collaborations and royalties from the sales of products developed under licenses of our intellectual property. We expect that any revenue we generate will fluctuate from quarter to quarter as a result of the timing and amount of license fees, research, development and manufacturing reimbursements, milestone and other payments from collaborations, and the amount and timing of payments that we receive upon the sale of our products, to the extent any are successfully commercialized. We do not expect to generate revenue from product sales until 2014, at the earliest. If we or our collaborators fail to complete the development of our product candidates in a timely manner or obtain regulatory

approval for them, our ability to generate future revenue, and our results of operations and financial position, would be materially adversely affected.

Research and development expense

Research and development expenses consist of the costs associated with our research and discovery activities, including investment in our Network Biology approach, conducting preclinical studies and clinical trials, manufacturing development efforts and activities related to regulatory filings. Our research and development expenses consist of:

- employee salaries and related expenses, which include stock compensation and benefits for the personnel involved in our drug discovery and development activities;
- external research and development expenses incurred under agreements with third party contract research organizations and investigative sites;
- manufacturing material expense for in-house manufacturing and third party manufacturing organizations and consultants;
- license fees for and milestone payments related to in-licensed products and technologies; and
- facilities, depreciation and other allocated expenses, which include direct and allocated expenses for rent and maintenance of facilities, depreciation of leasehold improvements and equipment, and laboratory and other supplies.

We expense research and development costs as incurred. Conducting a significant amount of research and development is central to our business model. Product candidates in late stages of clinical development generally have higher development costs than those in earlier stages of clinical development, primarily due to the increased size and duration of late stage clinical trials. We plan to increase our research and development expenses for the foreseeable future as we seek to complete development of our five most advanced product candidates, MM-398, MM-121, MM-111, MM-302 and MM-151, and to further advance our preclinical products and earlier stage research and development projects.

We use our employee and infrastructure resources across multiple research and development programs. We track expenses related to our five most advanced product candidates on a per project basis. Accordingly, we allocate internal employee related and infrastructure costs, as well as third party costs, to each of these programs. We do not allocate to particular development programs either stock compensation expense or expenses related to preclinical programs. Costs that are not directly attributable to specific clinical programs or early preclinical activities, such as general laboratory supplies, wages related to shared laboratory services, travel and employee training and development are not allocated and are considered general research and discovery expenses.

The following table summarizes our principal product development programs, including the related stages of development for each product candidate in development and the research and development expenses allocated to each clinical product candidate. Prior to May 2011, our

collaborator, PharmaEngine, led the clinical development of MM-398 with minimal investment by us.

(in thousands)	Indication	Current phase of development	Year ended December 31, 2008	2009	2010	Three months ended March 31, 2010	2011
MM-398	Cancer	Phase 2	$ —	$ —	$ 163	$ —	$ 447
MM-121	Cancer	Phase 2	5,968	12,328	18,014	4,327	5,992
MM-111	Cancer	Phase 1	8,814	7,462	15,938	3,894	2,262
MM-302	Cancer	Phase 1	—	940	4,974	1,237	1,345
MM-151	Cancer	Preclinical	1,542	3,960	2,452	439	3,265
MM-093	Autoimmune	Outlicensed	9,319	432	6	2	—
Other preclinical			3,054	5,149	8,926	1,825	2,851
General research and discovery			4,466	5,445	5,019	1,101	1,139
Stock compensation			1,365	1,942	2,786	590	700
Total research and development expense			$ 34,528	$ 37,658	$ 58,278	$ 13,415	$ 18,001

The successful development of our clinical and preclinical product candidates is highly uncertain. At this time, other than as discussed below, we cannot reasonably estimate the nature, timing or costs of the efforts that will be necessary to complete the remainder of the development of any of our preclinical or clinical product candidates or the period, if any, in which material net cash inflows from these product candidates may commence. This is due to the numerous risks and uncertainties associated with developing drugs, including the uncertainty of:

- the scope, rate of progress and expense of our ongoing, as well as any additional, clinical trials and other research and development activities;
- the potential benefits of our product candidates over other therapies;
- our ability to market, commercialize and achieve market acceptance for any of our product candidates that we are developing or may develop in the future;
- future clinical trial results;
- the terms and timing of regulatory approvals; and
- the expense of filing, prosecuting, defending and enforcing any patent claims and other intellectual property rights.

A change in the outcome of any of these variables with respect to the development of a product candidate could mean a significant change in the costs and timing associated with the development of that product candidate. For example, if the FDA or another regulatory authority were to require us to conduct clinical trials beyond those which we currently anticipate will be required for the completion of clinical development of a product candidate or if we experience significant delays in enrollment in any of our clinical trials, we could be required to expend significant additional financial resources and time on the completion of clinical development.

MM-398

MM-398 is currently being evaluated in a Phase 2 clinical trial in pancreatic cancer, and we plan to initiate a Phase 3 clinical trial in the fourth quarter of 2011 for MM-398 as a therapy in metastatic pancreatic cancer for patients who have failed treatment with gemcitabine. Our current estimate for the external costs associated with completing the planned Phase 3 clinical trial is between $15.0 million and $20.0 million. In May 2011, we made an upfront license payment of $10.0 million to PharmaEngine. We are required to make a milestone payment of $5.0 million to PharmaEngine in connection with dosing the first patient in our planned Phase 3 trial, which we expect to occur in the fourth quarter of 2011. We are required to make up to an aggregate of $205.0 million in additional milestone payments to PharmaEngine upon the achievement of specified regulatory and sales milestones. PharmaEngine is also entitled to tiered royalties based on net sales of MM-398 in Europe and certain countries in Asia. The royalty rates range from high single digits up to the low teens as a percentage of our net sales of MM-398 in these territories. We also expect to initiate Phase 2 clinical trials of MM-398 in other indications over the next 12 months. In addition, several investigator sponsored trials are ongoing in which the majority of the total clinical trial costs are paid by the investigators. Investigator sponsored trials include a Phase 2 clinical trial in colorectal cancer, a Phase 1 clinical trial in colorectal cancer and a Phase 1 clinical trial in glioma.

MM-121

We have entered into a license and collaboration agreement related to MM-121 with Sanofi. Under the terms of the agreement, we are responsible for leading clinical development through Phase 2 proof of concept trials for each indication, including the manufacturing of material for clinical trials. All expenses related to manufacturing are required to be reimbursed by Sanofi. Sanofi pays a portion of the estimated manufacturing campaign costs upfront and the remainder during and upon completion of the manufacturing campaign in accordance with an agreed upon budget. We separately record revenue and expenses on a gross basis under this arrangement. Sanofi is responsible for all development and manufacturing costs of MM-121. We are currently conducting one Phase 2 clinical trial and three Phase 1 clinical trials of MM-121 in multiple cancer types. During the third quarter of 2010, we received a $10.0 million milestone payment from Sanofi for initiating a proof of concept Phase 2 clinical trial of MM-121 in breast cancer. Based on the current joint development plan under this collaboration, we anticipate receiving $15 million of additional milestone payments by the end of the fourth quarter of 2011.

MM-111

We are currently conducting three Phase 1 clinical trials of MM-111 in multiple cancer types.

MM-302

We are currently conducting one Phase 1 clinical trial of MM-302 in breast cancer.

MM-151

We anticipate submitting an IND to the FDA for MM-151 in the third quarter of 2011 and, subject to the IND becoming effective, initiating one Phase 1 clinical trial of MM-151 by the end of 2011.

General and administrative expense

General and administrative expense consists primarily of salaries and other related costs for personnel, including stock-based compensation expenses and benefits, in our executive, legal, intellectual property, business development, finance, purchasing, accounting, information technology, corporate communications, investor relations and human resources departments. Other general and administrative expenses include employee training and development, board of directors costs, depreciation, insurance expenses, facility-related costs not otherwise included in research and development expense, and professional fees for legal services, including patent-related expenses, and accounting and information technology services. We expect that general and administrative expense will increase in future periods in proportion to increases in research and development and as a result of increased payroll, expanded infrastructure, increased consulting, legal, accounting and investor relations expenses associated with being a public company and costs incurred to seek collaborations with respect to any of our product candidates.

Interest income and interest expense

Interest income consists of interest earned on our cash and cash equivalents and short-term investments. Interest expense consists of expense incurred to finance equipment, office furniture and fixtures and noncash interest expense recognized on proceeds received from series F convertible preferred stock investors.

As more fully described in Note 13 to our consolidated financial statements appearing at the end of this prospectus, in July 2010, in connection with a review of our corporate records, we determined that we may not have obtained all of the required stockholder approvals to amend our articles of organization to authorize shares of series F convertible preferred stock that we agreed to issue in November 2007 and April 2008. As a result, in October 2010, we conducted an exchange offer in which we provided investors to whom we had agreed to issue and sell shares of series F convertible preferred stock in 2007 and 2008 with the opportunity to acquire shares of properly authorized series F convertible preferred stock. All of the holders of shares of series F convertible preferred stock accepted our offer and received new, properly authorized shares of series F convertible preferred stock. We recorded series F proceeds received in advance of the exchange offer as a short term liability and recognized noncash imputed interest expense for financial statement purposes of $4,064,000 for the year ended December 31, 2008, $4,805,000 for the year ended December 31, 2009 and $3,673,000 for the year ended December 31, 2010, which we collectively refer to as the series F amount. Upon completion of the exchanges of series F convertible preferred stock in October 2010, the series F amount was relieved and we recorded the initial investment of $5.10 per share as convertible preferred stock and the accrued noncash interest expense of $12,974,000 as additional paid-in capital.

Other income (expense)

Other income and other expense primarily consist of gains and losses on the change in value and time to expiration of preferred stock warrants, the recognition of federal and state sponsored tax incentives and other one-time income or expense related items.

Critical accounting policies and significant judgments and estimates

Our management's discussion and analysis of our financial condition and results of operations is based on our consolidated financial statements, which we have prepared in accordance with generally accepted accounting principles in the United States. The preparation of these consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements, as well as the reported revenues and expenses during the reporting periods. We evaluate our estimates and judgments on an ongoing basis. Estimates include revenue recognition, useful lives with respect to long-lived assets and intangibles, valuation of stock options, convertible preferred stock warrants, contingent consideration, accrued expenses, intangible assets, goodwill, in-process research and development and tax valuation reserves. We base our estimates on historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Our actual results may differ from these estimates under different assumptions or conditions.

While our significant accounting policies are more fully described in Note 2 to our consolidated financial statements appearing at the end of this prospectus, we believe that the following accounting policies are the most critical to aid you in fully understanding and evaluating our financial condition and results of operations.

Revenue recognition

We enter into biopharmaceutical product development agreements with collaborators for the research and development of therapeutic and diagnostic products. The terms of these agreements may include nonrefundable signing and licensing fees, funding for research, development and manufacturing, milestone payments and royalties on any product sales derived from collaborations. We assess these multiple elements in accordance with the Financial Accounting Standards Board, or FASB, Accounting Standards Codification 605, *Revenue Recognition*, in order to determine whether particular components of the arrangement represent separate units of accounting.

We recognize upfront license payments as revenue upon delivery of the license only if the license has stand-alone value and the fair value of the undelivered performance obligations can be determined. If the fair value of the undelivered performance obligations can be determined, such obligations are accounted for separately as the obligations are fulfilled. If the license is considered to either not have stand-alone value or have stand-alone value but the fair value of any of the undelivered performance obligations cannot be determined, the arrangement is accounted for as a single unit of accounting and the license payments and payments for performance obligations are recognized as revenue over the estimated period of when the performance obligations are performed.

Whenever we determine that an arrangement should be accounted for as a single unit of accounting, we must determine the period over which the performance obligations will be performed and revenue will be recognized. If we cannot reasonably estimate the timing and the level of effort to complete our performance obligations under the arrangement, then we recognize revenue under the arrangement on a straight-line basis over the period that we expect to complete our performance obligations.

Our collaboration agreements may include additional payments upon the achievement of performance-based milestones. As milestones are achieved, a portion of the milestone payment, equal to the percentage of the total time that we have performed the performance obligations to date over the total estimated time to complete the performance obligations, multiplied by the amount of the milestone payment, will be recognized as revenue upon achievement of such milestone. The remaining portion of the milestone will be recognized over the remaining performance period. Milestones that are tied to regulatory approval are not considered probable of being achieved until such approval is received. Milestones tied to counterparty performance are not included in our revenue model until the performance conditions are met.

To date, we have not received any royalty payments or recognized any royalty revenue. We will recognize royalty revenue upon the sale of the related products, provided we have no remaining performance obligations under the arrangement.

We record deferred revenue when payments are received in advance of the culmination of the earnings process. This revenue is recognized in future periods when the applicable revenue recognition criteria have been met.

We recognize grant revenues as we perform the underling research and development activities or, if applicable, when we meet the related preclinical, clinical or regulatory milestones and collectability and the amount to be received is not assured.

Accrued expenses

As part of the process of preparing financial statements, we are required to estimate accrued expenses. This process involves identifying services that have been performed on our behalf and estimating the level of services performed and the associated costs incurred for such services where we have not yet been invoiced or otherwise notified of actual cost. We record these estimates in our consolidated financial statements as of each balance sheet date. Examples of estimated accrued expenses include:

- fees due to contract research organizations in connection with preclinical and toxicology studies and clinical trials;
- fees paid to investigative sites in connection with clinical trials; and
- professional service fees.

In accruing service fees, we estimate the time period over which services will be provided and the level of effort in each period. If the actual timing of the provision of services or the level of effort varies from the estimate, we will adjust the accrual accordingly. In the event that we do not identify costs that have been incurred or we under or overestimate the level of services performed or the costs of such services, our actual expenses could differ from such estimates. The date on which some services commence, the level of services performed on or before a given date and the cost of such services are often subjective determinations. We make estimates based upon the facts and circumstances known to us at the time and in accordance with generally accepted accounting principles in the United States.

Stock-based compensation

We account for stock-based compensation by measuring and recognizing compensation expense for all stock-based awards made to employees, including stock options, based on the estimated grant date fair values. For employees, we use the straight-line method to allocate compensation expense to reporting periods over each optionee's requisite service period, which is generally the vesting period. For non-employees, we record awards at fair value, periodically remeasure awards to reflect the current fair value at each reporting period, and recognize expense over the related service period. When applicable, we account for these equity instruments based on the fair value of the consideration received or the fair value of the equity instrument issued, whichever is more reliably measurable.

We estimate the fair value of stock-based awards to employees and non-employees using the Black-Scholes option valuation model. Determining the fair value of stock-based awards requires the use of highly subjective assumptions, including volatility, the calculation of expected term, risk free interest rate and the fair value of the underlying common stock on the date of grant, among other inputs. The assumptions used in determining the fair value of stock-based awards represent our best estimates, which involve inherent uncertainties and the application of judgment. As a result, if factors change, and different assumptions are used, our level of stock-based compensation could be materially different in the future.

The expected volatility rate that we use to value stock option grants is based on historical volatilities of a peer group of similar companies whose share prices are publicly available. The peer group includes companies in the pharmaceutical and biotechnology industries in a similar stage of development, with a comparable market capitalization or a similar clinical focus. Because we do not have a sufficient history to estimate the expected term, we use the simplified method for estimating the expected term. Under this approach, the weighted-average expected life is presumed to be the average of the vesting term and the contractual term of the option for each tranche. The risk-free interest rate assumption was based on zero coupon U.S. treasury instruments that had terms consistent with the expected term of the stock option grants.

We recognize compensation expense for only the portion of options that are expected to vest. Accordingly, expected future forfeiture rates of stock options have been estimated based on our historical forfeiture rate, as adjusted for known trends. Forfeitures are estimated at the time of grant. If actual forfeiture rates vary from historical rates and estimates, additional adjustments to compensation expense may be required in future periods.

The following table sets forth information with respect to stock options granted from January 1, 2010 to May 31, 2011:

Date of issuance	Number of shares	Exercise price per share	Per share estimated fair value of common stock	Per share weighted average estimated fair value of options
February 1, 2010	460,000	$ 2.12	$ 2.12	$ 1.44
February 9, 2010	68,475	2.12	2.12	1.44
May 12, 2010	348,500	2.12	2.12	1.40
August 24, 2010	20,000	2.69	2.69	1.74
August 25, 2010	93,400	2.69	2.69	1.74
October 15, 2010	1,523,428	2.69	2.69	1.72
December 8, 2010	59,907	2.69	2.69	1.76
December 9, 2010	60,000	2.69	2.69	1.64
December 22, 2010	350,000	2.69	2.69	1.74
May 3, 2011	1,967,368	$ 5.54	$ 5.54	$ 3.57

The per share estimated fair value of common stock in the table above represents the determination by our board of directors of the fair value of our common stock as of the date of grant, taking into consideration various objective and subjective factors, including the conclusions, if applicable, of contemporaneous valuations of our common stock as discussed below. We computed the per share weighted average estimated fair value for stock option grants based on the Black-Scholes option valuation model.

Historically, we have granted stock options at exercise prices equal to the estimated fair value of our common stock. Due to the absence of an active market for our common stock, the fair value for purposes of determining the exercise price for stock option grants was determined by our board of directors, with the assistance and upon the recommendation of management, in good faith based on a number of objective and subjective factors including:

- the prices of our convertible preferred stock sold to or exchanged between outside investors in arm's length transactions, and the rights, preferences and privileges of the convertible preferred stock as compared to those of our common stock, including the liquidation preferences of the convertible preferred stock;
- our results of operations, financial position and the status of research and development efforts, including clinical trial data for the various compounds under development;
- the composition of, and changes to, our management team and board of directors;
- the lack of liquidity of our common stock as a private company;
- the material risks related to our business;
- achievement of enterprise milestones, including results of clinical trials and entering into collaboration and license agreements;

- the market performance of publicly traded companies in the life sciences and biotechnology sectors, and recently completed mergers and acquisitions of companies comparable to us;
- external market conditions affecting the life sciences and biotechnology industry sectors;
- the likelihood of achieving a liquidity event for the holders of our common stock and stock options, such as an initial public offering, given prevailing market conditions; and
- contemporaneous valuations prepared in accordance with methodologies outlined in the American Institute of Certified Public Accountants Practice Aid, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation,* or the Practice Aid.

Based on these factors, our board of directors granted options at exercise prices that increased from $2.12 per share in 2010 up to $5.54 per share in 2011.

In determining the exercise prices of the options set forth in the table above, our board of directors considered the most recent contemporaneous valuations of our common stock, which were prepared by an external consultant as of October 6, 2009, August 24, 2010 and March 31, 2011, and based its determination in part on the analyses summarized below.

For the option grants listed above, we used the market approach, specifically the guideline public company and the guideline transaction methods, to estimate the enterprise value of our company by comparing it to similar publicly traded companies and acquisition transactions. In addition, the valuations considered the prices paid for our preferred stock in recent arm's length market financing transactions, most notably, transactions in August 2010 in which one of our preferred stockholders sold shares to several unrelated third parties and our series G convertible preferred stock financing completed in April 2011. Given the complex capital structure of our company, it was also necessary to allocate the aggregate equity value to the various classes of our outstanding capital stock, including several series of convertible preferred stock and our common stock.

We used the probability-weighted expected return method to allocate the enterprise values to the common stock. Under this method, the value of the common stock is estimated based upon an analysis of future values for our company assuming various investment outcomes, the timing of which is based, in part, on the plans of our board of directors and management. Under this approach, share value is derived from the probability-weighted present value of expected future investment returns, considering each of the possible outcomes available to us, as well as the economic and control rights of each share class. The fair value of our common stock was estimated using a probability-weighted analysis of the present value of the returns afforded to common stockholders under several future stockholder exit or liquidity event scenarios, either through (1) an initial public offering, or IPO; (2) a trade sale of our company at a premium to cumulative amounts invested by preferred stock investors; or (3) a trade sale of our company at a value below the cumulative liquidation preference of the preferred stockholders.

The individual stockholder exit or liquidity scenarios considered in each analysis depended on the specific facts and circumstances, both internal and external, present as of each valuation date. For the October 6, 2009 valuation, we considered the following significant events:

- In September 2009, we entered into a license and collaboration agreement with Sanofi for the co-development and commercialization of MM-121, which included an upfront $60.0 million license fee, future clinical development and sales milestone payments and

future royalty payments, depending on the success of MM-121. The agreement also provided that Sanofi would reimburse us for all direct development and manufacturing costs incurred in connection with MM-121.

- In October 2009, we completed the acquisition of Hermes, through which we expanded our discovery capabilities into the area of targeted liposomes and added the MM-398 development program.

As a result, in October 2009, we utilized the probability-weighted expected return method, and the exit events considered included one short-term IPO scenario, one long-term IPO scenario, two separate trade sale scenarios at premiums to the cumulative liquidation preference of the preferred stockholders and a fifth scenario presuming a sale below the aggregate convertible preferred stock liquidation preference.

Subsequently, in January 2011, we received positive Phase 2 clinical results for MM-398 in both pancreatic and gastric cancer indications. As a result of the positive data from these trials, the continued progress of our MM-121 and MM-111 clinical programs, the filing of an IND for MM-302 and the further expansion of our preclinical development pipeline, beginning with the March 31, 2011 valuation, a third low-case IPO scenario was added and the sale below the aggregate convertible preferred stock liquidation preference was removed. This third low-case IPO scenario was added to better reflect the expectations of our board of directors and management with respect to the potential liquidity outcomes for our company as of the valuation date considering, in part, the number of compounds in our clinical development pipeline and the anticipated level of future funding necessary to initiate multiple Phase 2/3 clinical trials for two or more of these development programs simultaneously.

The future values of our common stock in the IPO scenarios and the trade sale scenarios were estimated by application of the market approach based on certain key assumptions, including the following:

- expected pre-money IPO valuations from recently completed initial public offerings;
- estimated third party trade sale values based on recent transactions involving biotechnology or biopharmaceutical companies; and
- expected dates for a future IPO or trade sale of our company.

For the sale above the preferred stock liquidation preference scenario, the future common stock value was estimated based on certain assumptions, including the estimated aggregate enterprise value that could be attained through such a sale and the estimated expected date of the future sale. The present values of our common stock under each scenario were then calculated by applying a risk-adjusted discount rate and then probability-weighting those present values based on our estimate of the relative probability of each scenario.

Finally, the estimated fair value of our common stock was reduced by a discount for lack of marketability. The discount for lack of marketability was analyzed based on the restrictive factors inherent in privately held common stock. Among other considerations, the determination of an appropriate discount for lack of marketability, was based in part on a put-option model that considers variables such as time to liquidity, volatility and the risk-free rate. Based on these analyses and consideration of liquidity restrictions, discounts for lack of marketability ranging from 7.5% to 5.0% were applied, depending on the presumed timing of the exit event.

Stock option grants from February 1, 2010 to May 12, 2010

Our board of directors granted stock options on February 1, 2010, February 9, 2010 and May 12, 2010, with each having an exercise price of $2.12 per share. In addition to the objective and subjective factors discussed above, our board of directors also considered input from management and the valuation as of October 6, 2009. Management determined that no significant events or other circumstances had occurred between October 6, 2009 and May 12, 2010 that would indicate there was a change in the fair value of our common stock during that period. The specific facts and circumstances considered by our board of directors for the October 6, 2009 valuation included the following:

- execution of a license and collaboration agreement with Sanofi for the development and commercialization of MM-121 in September 2009, as described above;
- completion of the acquisition of Hermes in October 2009, expanding our discovery capabilities into the area of targeted liposomes, including the MM-398 development program;
- filing of an IND for MM-111;
- out-licensing of MM-093 to GTC; and
- continued dislocation in the public and private capital markets resulting from weakness in macroeconomic conditions and the global credit and liquidity crisis.

In the October 6, 2009 valuation, the short-term IPO scenario assumed a liquidity event in July 2010 and the long-term IPO scenario assumed an exit event in October 2011. In applying the market approach under both IPO scenarios, it was assumed that all development programs, including MM-121 and MM-111, would continue to advance in the clinic through the time of an exit event. The guideline public company method as described in the Practice Aid was used to apply the market approach to both IPO scenarios. Market data on pre-money IPO valuations for biotechnology companies that went public in the period from 2005 to 2008 was analyzed under this method. From this set of data, a narrower sub-set of comparable companies was selected which had product candidates in various stages of drug development ranging from discovery stage to Phase 3 clinical trials. The selected enterprise values for the short-term IPO scenario and the long-term IPO scenario were at or above the high-end of the observed range of the IPO market data based on consideration of our Network Biology approach, the collaboration agreement with Sanofi, the recently completed Hermes acquisition and progress made in our ongoing development programs.

In applying the market approach to estimate our aggregate future enterprise values under the base-case and high-case trade sale scenarios, the high-case scenario assumed all development programs, including MM-121 and MM-111, would advance in the clinic until the time of a trade sale, while the base-case scenario assumed one or more program would experience a clinical delay or setback prior to an exit event. In both trade sale scenarios, the liquidity event was assumed to occur in October 2012. In applying the market approach to the trade sale scenarios, the guideline transaction method was utilized. Under this method, sale transactions of similar private biotechnology companies were analyzed. The values utilized were supported by published transaction values between 2006 and 2008 involving comparable companies with product candidates in various stages of drug development, ranging from discovery stage to Phase 3 clinical trials. In estimating our enterprise value, consideration was given to those

transactions for companies that were in a comparable stage of development as we were expected to be in as of October 2012. The selected enterprise value for the base-case scenario was based on consideration of the median of the comparable transaction values, and the selected enterprise value used in the high-case scenario was based on consideration of comparable transaction values between third quartile and the maximum of the observed range.

In the sale at a price below liquidation preference scenario, a sale of our existing research and intellectual property was assumed as of October 2012, at a value that would not allow preferred stockholders to realize their full liquidation preference. The fair value of our common stock under this exit scenario was determined by reducing the total estimated enterprise value by the liquidation preferences of convertible preferred shares, all of which would receive more value based on their liquidation preferences plus accrued dividends, as opposed to converting to common stock.

Under all the exit scenarios considered in the probability-weighted expected return method, the fair value of our common stock was calculated using the estimated future enterprise valuations, a risk-adjusted discount rate of 30.0% based on the inherent risk of a hypothetical investment in our common stock, and a discount for lack of marketability which ranged between 5.0% in the short-term IPO scenario to 7.5% in all other assumed liquidity events. The risk-adjusted discount rate was based on consideration of the weighted average cost of capital for comparable biotechnology companies adjusted for company specific risk factors, the venture capital rates of return detailed in the Practice Aid, and an analysis of other quantitative and qualitative factors considered pertinent to estimating the discount rate.

In the October 6, 2009 valuation, probability weightings of 20.0% were used for the short-term and long-term IPO scenarios, 30.0% and 10.0% were used for the base-case and high-case trade sale scenarios, respectively, and 20.0% was used for the sale at a price below liquidation preference scenario. The probability weightings assigned to the respective exit scenarios were primarily based on consideration of our various drug development programs, industry clinical success rates, our expected near-term and long-term funding requirements, and an assessment of the current financing and biotechnology industry environments at the time of the valuation. The resulting value, which represented the estimated fair value of our common stock as of October 6, 2009, was $2.12 per share.

Stock option grants from August 24, 2010 to December 22, 2010

Our board of directors granted stock options on August 24, 2010, August 25, 2010, October 15, 2010, December 8, 2010, December 9, 2010 and December 22, 2010, with each having an exercise price of $2.69 per share. In addition to the objective and subjective factors discussed above, our board of directors also considered input from management and the valuation as of August 24, 2010. The increase in share value from the October 6, 2009 valuation was primarily attributable to increases in the selected enterprise values in the long-term IPO and the base-case trade sale scenarios and a decrease in the probability weighting assigned to the sale at a price below liquidation preference scenario. The specific facts and circumstances considered by our board of directors in assessing these key valuation assumptions included the following:

- transactions in August 2010 in which one of our preferred stock investors sold shares of series B, series C and series D convertible preferred stock to several unrelated third parties in arm's length transactions;

- initiation in July 2010 of a randomized, double blind Phase 2 clinical trial of MM-121 in combination with exemestane (Aromasin) in breast cancer patients, which triggered payment of a $10 million milestone from Sanofi; and

- difficult conditions in the IPO and merger and acquisition markets, which resulted in an extension of the assumed timing for a liquidity event in all of the scenarios considered in the probability-weighted expected return method.

In applying the market approach to estimate our future enterprise values under the IPO exit scenarios, as described previously, it was assumed that a liquidity event would occur in November 2011 in the short-term scenario and in August 2012 in the long-term scenario. The valuation methodologies and underlying assumptions utilized to apply the market approach under the IPO liquidity scenarios were consistent with those employed in the October 6, 2009 valuation. Given our development pipeline, which included three clinical programs (MM-398, MM-121 and MM-111) and four additional compounds in various stages of preclinical development (MM-302, MM-151, MM-141 and MM-131) as of the valuation date, the selected enterprise value in the short-term scenario was based on the pre-money IPO market data for transactions between the third quartile and the maximum of the observed range. The selected aggregate enterprise value in the long-term scenario was based on consideration of the high-end of the observed range of transaction values and assumed our three most advanced development projects (MM-398, MM-121 and MM-111) would continue their positive clinical progression.

In applying the market approach to estimate our aggregate future enterprise values under the two trade sale scenarios, as described previously, it was assumed that a liquidity event would occur in August 2013 for the base-case scenario and in February 2013 for the high-case scenario. The valuation methodologies and underlying assumptions utilized to apply the market approach under the trade-sale scenarios were consistent with those employed in the October 6, 2009 valuation. The selected enterprise value utilized in the base-case scenario considered the median of the observed range of comparable transaction values. The selected enterprise value for the high-case scenario was based on the comparable transaction values between the third quartile and the high-end of the observed range. We assumed we would make significant progress and achieve certain key milestones with respect to our development pipeline by the time a trade sale was consummated, including assumptions that our three most advanced development projects (MM-398, MM-121 and MM-111) would continue their positive clinical progression, one or more additional compounds would enter Phase 1/2 trials, including MM-302, and several other compounds would near Phase 1 trials (MM-151, MM-141 and MM-131).

In the sale at a price below liquidation preference scenario, a sale of our existing research and intellectual property was assumed as of August 2013, at a value that would not allow the preferred stockholders to realize their full liquidation preference. The valuation methodologies and underlying assumptions utilized in this scenario were consistent with those employed as of October 6, 2010.

Under all the exit scenarios considered in the probability-weighted expected return method, the fair value of our common stock was calculated using the estimated future enterprise valuations, a risk-adjusted discount rate of 30.0% based on the inherent risk of a hypothetical investment in our common stock, and a discount for lack of marketability which ranged

between 5.0% in the short-term IPO scenario to 7.5% in all other assumed liquidity events. The risk-adjusted discount rate was based on consideration of the weighted average cost of capital for comparable biotechnology companies adjusted for company specific risk factors, the venture capital rates of return detailed in the Practice Aid, and an analysis of other quantitative and qualitative factors considered pertinent to estimating the discount rate.

In the August 24, 2010 valuation, probability weightings of 20.0% were used for the short-term and long-term IPO scenarios, respectively, 10.0% and 35.0% were used for the high-case and base-case trade sale scenarios, respectively, and 15.0% was used for the sale below liquidation preference scenario. The probability weightings assigned to the respective exit scenarios were primarily based on consideration of our various drug development programs, industry clinical success rates, our expected near-term and long-term funding requirements, and an assessment of the current financing and biotechnology industry environments at the time of the valuation. The resulting value, which represented the estimated fair value of our common stock as of August 24, 2010, was $2.69 per share. Management determined that no significant events or other circumstances had occurred between August 24, 2010 and December 22, 2010 that would indicate there was a change in the fair value of our common stock during that period.

Stock option grants on May 3, 2011

Our board of directors granted stock options on May 3, 2011 with an exercise price of $5.54 per share. In addition to the objective and subjective factors discussed above, our board of directors also considered input from management and the valuation as of March 31, 2011. The increase in share value from the August 24, 2010 valuation was primarily attributable to increases in the selected enterprise values in the long-term IPO, short-term IPO and high-case trade sale scenarios, a decrease in estimated time until a liquidity event in each of the exit scenarios and the addition of a third low-case IPO scenario and the elimination of the sale at a price below liquidation preference scenario. The specific facts and circumstances considered by our board of directors in assessing these key valuation assumptions included the following:

- positive results in January 2011 indicating that MM-398 met its primary endpoint in a Phase 2 clinical trial for patients with metastatic pancreatic cancer who had failed prior treatment with gemcitabine;
- positive Phase 2 clinical trial results in January 2011 for MM-398 as a second line therapy for patients with gastric or gastroesophageal junction adenocarcinoma;
- completion of a series G convertible preferred stock financing on April 6, 2011 in which we sold 11.0 million shares at $7.00 per share for aggregate proceeds of approximately $77.0 million;
- execution of a term sheet with PharmaEngine in February 2011 and determination by management as of the valuation date of a high likelihood that a final agreement would be executed under which we would reacquire the major Asia and Europe country rights to commercialize and market MM-398;
- filing of an IND in February 2011 for MM-302; and
- positive equity market conditions and performance for publicly traded biotechnology and biopharmaceutical companies.

The market approach was used to estimate our aggregate future enterprise values under three separate IPO scenarios, as described previously. The short-term scenario assumed a liquidity event in December 2011, the long-term scenario assumed a liquidity event in June 2012, and the low-case IPO scenario assumed a liquidity event in September 2012. The valuation methodologies and underlying assumptions utilized to apply the market approach under the short-term and long-term IPO liquidity scenarios were consistent with those employed in the August 24, 2010 valuation. The selected future enterprise value in the short-term IPO scenario was at the high-end of the observed range of IPO market data based on consideration of the recent series G convertible preferred stock financing at $7.00 per share and our development pipeline as of the valuation date, which included:

- MM-398, postive Phase 2 data announced in January 2011;
- MM-121, in Phase 2 development;
- MM-111, in Phase 1 development;
- MM-302, IND filed in February 2011;
- MM-151, in advanced preclinical development; and
- three additional compounds in the discovery phase, MM-310, MM-141 and MM-131.

The future enterprise value selected in the long-term IPO scenario was above the high-end of the range of IPO market data and was based on the considerations listed above, and the assumption that clinical progress would be made in multiple development programs between the assumed short-term IPO and long-term IPO liquidity dates. The selected future enterprise value in the low-case IPO scenario was based on consideration of the IPO market data between the third quartile and the high-end of the range and assumed a clinical set-back or delay in one or more of our three clinical development programs.

In applying the market approach to estimate our aggregate future enterprise values under the two trade sale scenarios, as described previously, it was assumed that a liquidity event would occur in June 2013 for the base-case scenario, and in December 2012 for the high-case scenario. The valuation methodologies and underlying assumptions utilized to apply the market approach under the trade-sale scenarios were consistent with those employed in the August 24, 2010 valuation. The selected enterprise value for the base-case was based on consideration of the median of the observed range of comparable transaction values. The selected enterprise value for the high-case sale scenario was based on consideration of the high-end of the observed range of comparable transaction values.

Based on consideration of our development pipeline and the Network Biology approach, the March 31, 2011 valuation did not include a sale at a price below the liquidation preference scenario.

Under all the scenarios considered in the probability-weighted expected return method, the fair value of our common stock was calculated using the expected future enterprise valuations, a risk-adjusted discount rate of 25.0% based on the inherent risk of a hypothetical investment in our common stock, and a discount for lack of marketability of 5.0% in all of the assumed liquidity scenarios. The risk-adjusted discount rate was based on consideration of the weighted average cost of capital for comparable biotechnology companies adjusted for company specific

risk factors, the venture capital rates of return detailed in the Practice Aid, and an analysis of other quantitative and qualitative factors considered pertinent to estimating the discount rate.

In the March 31, 2011 valuation, probability weightings of 30.0%, 20.0% and 10.0% were used for the short-term, long-term and low-case IPO scenarios, respectively, and 15.0% and 25.0% were used for the high-case and base-case trade sale scenarios, respectively. The probability weightings assigned to the respective exit scenarios were primarily based on consideration of our various drug development programs, industry clinical success rates, our expected near-term and long-term funding requirements, and an assessment of the current financing and biotechnology industry environments at the time of the valuation. The resulting value, which represented the estimated fair value of our common stock as of March 31, 2011, was $5.54 per share. Management determined that no significant events or other circumstances that had not been taken into consideration in the March 31, 2011 valuation had occurred between March 31, 2011 and May 3, 2011 that would indicate there was a change in the fair value of our common stock during that period.

There are significant judgments and estimates inherent in the determination of these valuations. These judgments and estimates include assumptions regarding our future performance; the time to completing an IPO, a trade sale, or other liquidity event; and the timing of and probability of continuing to successfully progress our various drug development candidates toward commercialization, as well as determinations of the appropriate valuation methods. If different assumptions had been applied in the valuations, our stock-based compensation expense, net loss and net loss per share could have been significantly different. While the assumptions used to calculate and account for stock-based compensation awards represents management's best estimates, these estimates involve inherent uncertainties and the application of management's judgment. As a result, if revisions are made to the underlying assumptions and estimates, our stock-based compensation expense could vary significantly from period to period.

Acquisition

In connection with our acquisition of Hermes, we recorded the assets acquired, liabilities assumed, contractual contingencies and contingent consideration at their fair value on the acquisition date. The purchase price allocation process requires management to make significant estimates and assumptions at the acquisition date, especially with respect to intangible assets and estimated contingent consideration payments.

Although we believe the assumptions and estimates we have made with respect to the Hermes acquisition were reasonable and appropriate, they were based in part on management's judgment and information obtained from the management of the acquired company and are inherently uncertain. Examples of critical estimates in valuing the estimated contingent consideration and certain of the intangible assets we have acquired include the following:

- estimated fair value of the acquisition-related contingent consideration, which was performed using a probability-weighted analysis of future liquidity events;
- future expected cash flows of research and development activities and future expected cash flows from product sales and license agreements; and
- discount rates.

Unanticipated events and circumstances may occur which may affect the accuracy or validity of such assumptions, estimates or actual results. Additionally, any change in the fair value of the acquisition-related contingent consideration subsequent to the acquisition date, including changes from events after the acquisition date, such as changes in our estimate of the probability of certain future liquidity events, will be recognized in earnings in the period of the estimated fair value change. A change in fair value of the acquisition-related contingent consideration could have a material affect on the statement of operations and financial position in the period of the change in estimate.

Results of operations

Comparison of the three months ended March 31, 2010 and 2011

Three months ended March 31, (in thousands)	2010	2011
Research and development revenues	$ 3,969	$ 6,461
Research and development expenses	13,415	18,001
General and administrative expenses	2,453	3,101
Loss from operations	(11,899)	(14,641)
Interest income	14	14
Interest expense	(1,201)	(6)
Other income	22	1,098
Net loss before income taxes and non-controlling interest	(13,064)	(13,535)
Benefit from income taxes	—	—
Net loss	$ (13,064)	$ (13,535)

Research and development revenues

Revenues for the three months ended March 31, 2011 were $6.5 million, compared to $4.0 million for the three months ended March 31, 2010, an increase of $2.5 million, or 63%. This increase resulted from increased revenues received under the collaboration agreement with Sanofi due to increased research and development and manufacturing services.

Research and development expense

Research and development expenses for the three months ended March 31, 2011 were $18.0 million, compared to $13.4 million for the three months ended March 31, 2010, an increase of $4.6 million, or 34%. This increase was primarily attributable to:

- $0.5 million of increased spending on preclinical product candidates and other general unallocated research and development due to an increase in the number of preclinical programs;
- $2.8 million of increased MM-151 spending due to increased toxicology and other preclinical costs;
- $1.7 million of increased MM-121 spending due to initiation of two new clinical trials and increased spending on ongoing clinical trials; and
- $0.4 million of increased MM-398 spending due to preparation to launch a phase 3 clinical trial.

These increases were partially offset by a decrease of $1.1 million in MM-111 spending due to the timing of clinical and manufacturing costs.

General and administrative expense

General and administrative expenses for the three months ended March 31, 2011 were $3.1 million, compared to $2.5 million for the three months ended March 31, 2010, an increase of $0.6 million, or 24%. This increase was primarily attributable to increased labor and labor related costs related to an increase in headcount.

Interest income

Interest income for each of the three months ended March 31, 2011 and 2010 was $14,000. Interest income was related to interest earned on our money market investments.

Interest expense

Interest expense for the three months ended March 31, 2011 was $6,000, compared to $1.2 million for the three months ended March 31, 2010. This decrease was primarily due to lower non-cash interest expense recognized on the series F amount, which was settled in October 2010 and was not present during 2011.

Other income

Other income for the three months ended March 31, 2011 was $1.1 million, compared to $22,000 for the three months ended March 31, 2010, an increase of $1.1 million. This increase was primarily due to the receipt of a $1.8 million cash settlement from a former service provider, partially offset by $0.7 million from the change in the fair value of preferred stock warrants.

Comparison of the years ended December 31, 2009 and 2010

Year ended December 31, (in thousands)	**2009**	**2010**
Research and development revenues	$ 2,148	$ 20,305
Research and development expenses	37,658	58,278
General and administrative expenses	12,178	11,381
Contingent consideration	—	(178)
Loss from operations	(47,688)	(49,176)
Interest income	81	74
Interest expense	(4,909)	(3,726)
Other income	41	2,669
Net loss before income taxes and non-controlling interest	(52,475)	(50,159)
Benefit from income taxes	3,402	—
Net loss	$ (49,073)	$ (50,159)

Research and development revenues

Revenues for 2010 were $20.3 million, compared to $2.1 million for 2009, an increase of $18.2 million. This increase resulted from a full year of revenues recognized under the collaboration agreement with Sanofi.

Research and development expense

Research and development expenses for 2010 were $58.3 million, compared to $37.7 million for 2009, an increase of $20.6 million, or 55%. This increase was primarily attributable to:

- $8.5 million of increased MM-111 spending due to initiation of one new clinical trial and increased manufacturing activity;
- $3.4 million of increased spending on preclinical product candidates and other general unallocated research and development due to an increase in the number of preclinical programs;
- $5.7 million of increased MM-121 spending due to initiation of three new clinical trials and increased spending on ongoing clinical trials;
- $4.0 million of increased MM-302 spending due to increased preclinical activities; and
- $0.8 million of increased stock compensation expense due to increased headcount.

These increases were partially offset by the following decreases:

- $0.4 million of MM-093 spending due to out-licensing the program to GTC during 2009; and
- $1.5 million of MM-151 spending due to the timing of toxicology studies and other preclinical activities.

General and administrative expense

General and administrative expenses for 2010 were $11.4 million, compared to $12.2 million for 2009, a decrease of $0.8 million, or 7%. This decrease was primarily attributable to $2.0 million of MM-121 collaboration consulting expenses in 2009, which was not present in 2010, partially offset by higher legal costs and higher labor and labor related costs.

Contingent consideration

Contingent consideration for 2010 was a benefit of $0.2 million compared to $0 in 2009. This benefit was a result of a change in the estimated probability of occurrence of a financing event in the contingent consideration arrangement from the Hermes acquisition.

Interest income

Interest income for each of 2010 and 2009 was $0.1 million. Interest income was related to interest earned on our money market investments.

Interest expense

Interest expense for 2010 was $3.7 million, compared to $4.9 million for 2009, a decrease of $1.2 million, or 24%. This decrease was primarily due to lower non-cash interest expense recognized on the series F amount, which was settled in October 2010.

Other income

Other income for 2010 was $2.7 million, compared to $41,000 for 2009, an increase of $2.7 million. This increase was primarily due to the receipt of a $2.4 million grant awarded under the federal Qualifying Therapeutic Discovery Project program, which was recognized as other income in 2010.

Benefit from income taxes

In 2009, we recognized a benefit from income taxes of $3.4 million upon the release of a tax valuation allowance as a result of the acquisition of Hermes.

Comparison of the years ended December 31, 2008 and 2009

Year ended December 31, (in thousands)	2008	2009
Research and development revenues	$ 365	$ 2,148
Research and development expenses	34,528	37,658
General and administrative expenses	8,836	12,178
Loss from operations	(42,999)	(47,688)
Interest income	1,243	81
Interest expense	(4,403)	(4,909)
Other income	607	41
Net loss before income taxes and non-controlling interest	(45,552)	(52,475)
Benefit from income taxes	—	3,402
Net loss	$ (45,552)	$ (49,073)

Research and development revenues

Revenues for 2009 were $2.1 million, compared to $0.4 million for 2008, an increase of $1.7 million. The increase was primarily due to revenues recognized under the collaboration agreement with Sanofi in 2009, partially offset by revenues recognized from a federal research grant in 2008.

Research and development expense

Research and development expenses for 2009 were $37.7 million, compared to $34.5 million for 2008, an increase of $3.2 million, or 9%. This increase was primarily attributable to:

- $6.4 million of increased MM-121 spending due to increased preclinical spending and spending to prepare for initiation of one new clinical trial;
- $3.1 million of increased spending on preclinical product candidates and other general unallocated research and development due to an increase in the number of preclinical programs;
- $2.4 million of increased MM-151 spending due to increased toxicology and other preclinical costs;
- $0.9 million of increased MM-302 spending due to increased preclinical costs; and
- $0.6 million of increased stock compensation expense due to increased headcount and the timing of grants.

These increases were partially offset by the following decreases:

- $8.9 million of decreased spending on MM-093 due to licensing the program to GTC during 2009; and
- $1.4 million of decreased spending on MM-111 due to the timing of manufacturing campaigns.

General and administrative expense

General and administrative expenses for 2009 were $12.2 million, compared to $8.8 million for 2008, an increase of $3.4 million, or 39%. This increase was primarily attributable to incremental increases of $2.0 million of MM-121 collaboration consulting expenses and $1.2 million of legal expenses, primarily related to the MM-121 collaboration and the acquisition of Hermes.

Interest income

Interest income for 2009 was $0.1 million, compared to $1.2 million for 2008, a decrease of $1.1 million, or 92%. This decrease was primarily due a lower net investment balance coupled with lower interest rates earned on cash balances and investments. We converted all of our marketable securities to lower risk and lower yielding cash and cash equivalents during the second quarter of 2008.

Interest expense

Interest expense for 2009 was $4.9 million, compared to $4.4 million for 2008, an increase of $0.5 million, or 11%. This increase was primarily due to higher non-cash interest expense recognized on the series F amount.

Other income

Other income for 2009 was $41,000, compared to $0.6 million for 2008, a decrease of $0.6 million. This decrease was primarily due to the change in estimated fair value of preferred stock warrants.

Benefit from income taxes

In 2009, we recognized a benefit from income taxes of $3.4 million upon the release of a tax valuation allowance as a result of the acquisition of Hermes.

Liquidity and capital resources

Sources of liquidity

We have financed our operations to date primarily through private placements of our convertible preferred stock, collaborations and, to a lesser extent, through government grants, the monetization of tax credits and equipment lease financings. Through March 31, 2011, we have received $191.3 million from the sale of convertible preferred stock and warrants and $98.1 million of upfront license fees, milestone payments, reimbursement of research and development costs and manufacturing services and other payments from our collaborations. In April 2011, we raised additional proceeds of $77.0 million from the sale of our series G convertible preferred stock.

As of March 31, 2011, we had consolidated cash and cash equivalents of approximately $32.6 million, of which approximately $12.5 million related to proceeds received in advance of closing of the series G convertible preferred stock financing and $3.5 million related to the cash and cash equivalents held by our majority owned subsidiary, Silver Creek, which is consolidated for financial reporting purposes and is designated for the operations of Silver Creek. We primarily invest cash and cash equivalents in money market funds backed by the U.S. treasury and U.S. federal agencies.

Cash flows

The following table provides information regarding our cash flows for the years ended December 31, 2008, 2009 and 2010 and the three months ended March 31, 2010 and 2011.

	Year ended December 31,			Three months ended March 31,	
(in thousands)	**2008**	**2009**	**2010**	**2010**	**2011**
Cash (used in) provided by operating activities	$ (38,009)	$ 19,055	$ (26,369)	$ (13,925)	$ (9,944)
Cash provided by (used in) investing activities	19,501	(4,851)	(4,900)	(375)	(561)
Cash provided by (used in) financing activities	23,196	(791)	3,595	(212)	12,387
Net increase (decrease) in cash and cash equivalents	$ 4,688	$ 13,413	$ (27,674)	$ (14,512)	$ 1,882

Operating activities

Cash used in operating activities of $38.0 million during the year ended December 31, 2008 was primarily a result of our $45.6 million net loss coupled with changes in operating assets and liabilities of $0.4 million, partially offset by non-cash items of $8.0 million. Cash provided by operating activities of $19.1 million during the year ended December 31, 2009 was primarily a result of our $49.1 million net loss, partially offset by non-cash items of $7.2 million, changes in operating assets and liabilities of $0.9 million and receipt of $60 million upfront payment under the collaboration agreement with Sanofi. Cash used in operating activities of $26.4 million during the year ended December 31, 2010 was primarily a result of our $50.2 million net loss, partially offset by non-cash items of $11.7 million, changes in operating assets and liabilities of $2.1 million and receipt of $10.0 million milestone payment under the collaboration agreement with Sanofi. Cash used in operating activities of $13.9 million during the three month period ended March 31, 2010 was primarily a result of our net loss of $13.1 million coupled with changes in operating assets and liabilities of $3.9 million, partially offset by non-cash items of $3.1 million. Cash used in operating activities of $9.9 million during the three month period ended March 31, 2011 was primarily a result of our $13.5 million net loss, partially offset by non-cash items of $2.9 million and changes in operating assets and liabilities of $0.7 million.

Investing activities

Investing activities provided cash of $19.5 million for the year ended December 31, 2008 and used cash of $4.9 million for both the years ended December 31, 2009 and 2010. Investing activities used cash of $0.4 million for the three month period ended March 31, 2010 and $0.6 million for the three month period ended March 31, 2011. Cash used in investing activities during 2009, 2010 and both three month periods ended March 31, 2011 and 2010 was primarily due to the purchase of plant, property and equipment. Cash provided by investing activities of $19.5 million in 2008 was primarily due to proceeds from the sale of investments of $24.7 million, partially offset by purchases of marketable securities of $3.4 million and $1.5 million from the purchase of plant, property and equipment.

Financing activities

Financing activities provided cash of $23.2 million for the year ended December 31, 2008, used cash of $0.8 million for the year ended December 31, 2009, and provided cash of $3.6 million for the year ended December 31, 2010. Financing activities used cash of $0.2 million for the three month period ended March 31, 2010 and provided cash of $12.4 million for the three month period ended March 31, 2011. Cash provided by financing activities of $23.2 million during 2008 was primarily from proceeds from the series F convertible preferred stock financing of $24.5 million, partially offset by the payment of capital leases of $1.0 million and the payment of long term debt of $1.0 million. Cash used in financing activities of $0.7 million during 2009 was primarily a result of payment of capital leases of $1.0 million. Cash provided by financing activities of $3.6 million during 2010 was primarily a result of proceeds received by Silver Creek for the issuance of convertible preferred stock of $4.2 million, partially offset by the payment of capital leases of $0.9 million. Cash used in financing activities of $0.2 million for the three months ended March 31, 2010 was a result of the payment of capital leases. Cash provided by financing activities of $12.4 million for the three months ended March 31, 2011 was primarily a result of proceeds received for the series G convertible preferred stock financing in advance of the closing on April 6, 2011 of $12.5 million.

Funding requirements

We have not completed development of any therapeutic products or companion diagnostics. We expect to continue to incur significant expenses and increasing operating losses for at least the next several years. We anticipate that our expenses will increase substantially as we:

- initiate or continue our clinical trials of our five most advanced product candidates;
- continue the research and development of our other product candidates;
- seek to discover additional product candidates;
- seek regulatory approvals for our product candidates that successfully complete clinical trials;
- establish a sales, marketing and distribution infrastructure and scale up manufacturing capabilities to commercialize products for which we may obtain regulatory approval; and
- add operational, financial and management information systems and personnel, including personnel to support our product development and planned commercialization efforts.

We expect that the net proceeds from this offering, together with our existing cash and cash equivalents, including the proceeds of our series G financing, anticipated interest income and anticipated milestone payments and research and development and manufacturing funding under our collaboration with Sanofi related to MM-121, will enable us to fund our operating expenses and capital expenditure requirements through at least . We have based this estimate on assumptions that may prove to be wrong, and we could use our available capital resources sooner than we currently expect. Because of the numerous risks and uncertainties associated with the development and commercialization of our product candidates, and the extent to which we enter into collaborations with third parties to participate in their development and commercialization, we are unable to estimate the amounts of increased capital outlays and operating expenditures associated with our current

and anticipated clinical trials. Our future capital requirements will depend on many factors, including:

- the progress and results of the clinical trials of our five most advanced product candidates;
- the success of our collaborations with Sanofi related to MM-121 and PharmaEngine related to MM-398;
- the scope, progress, results and costs of preclinical development, laboratory testing and clinical trials for our other product candidates;
- the costs, timing and outcome of regulatory review of our product candidates;
- the costs of commercialization activities, including product sales, marketing, manufacturing and distribution;
- the costs of preparing, filing and prosecuting patent applications and maintaining, enforcing and defending intellectual property-related claims;
- the extent to which we acquire or invest in businesses, products and technologies; and
- our ability to establish and maintain additional collaborations on favorable terms, particularly marketing and distribution arrangements for oncology product candidates outside the United States and Europe.

Until such time, if ever, as we can generate substantial product revenues, we expect to finance our cash needs through a combination of equity offerings, debt financings, collaborations, strategic alliances, licensing arrangements and other marketing and distribution arrangements. We do not have any committed external sources of funds, other than our collaboration with Sanofi, which is terminable by Sanofi for convenience upon 180 days' prior written notice. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the ownership interest of our stockholders will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect your rights as a stockholder. Debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. If we raise additional funds through marketing and distribution arrangements or other collaborations, strategic alliances or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or product candidates or to grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce or terminate our product development or commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

Contractual obligations and commitments

The following table summarizes our contractual obligations as of December 31, 2010:

(in thousands)	Total	Less than 1 year	1 to 3 years	3 to 5 years	More than 5 years
Capital lease obligations(1)	$ 505	$ 456	$ 49	$ —	$ —
Operating lease obligations(2)	3,703	2,617	1,086	—	—
Antibody licensing costs(3)	2,650	2,650	—	—	—
Total contractual cash obligations	$ 6,858	$ 5,723	$ 1,135	$ —	$ —

(1) Capital lease obligations include obligated interest payments.

(2) On March 31, 2011, we amended our existing office and manufacturing lease to extend the term on a portion of our leased space until April 2015 and extend the term on the remainder of our leased space until April 2013, with options to extend until April 2015. Incremental future minimum lease payments as a result of this amendment that have not been included in the above table are $1,695,000, $1,986,000, $1,429,000 and $480,000 for the years ended December 31, 2012, 2013, 2014 and 2015, respectively.

(3) Antibody licensing costs related to a collaboration agreement with Adimab LLC for MM-151 include payments of $1.2 million, which we paid in July 2011, and $1.5 million, which we expect to pay during the fourth quarter of 2011.

In May 2011, we entered into an agreement with PharmaEngine under which we reacquired previously licensed rights for MM-398 and made an upfront license payment to PharmaEngine of $10.0 million. We will be required to make a $5.0 million milestone payment to PharmaEngine in connection with dosing the first patient in our planned Phase 3 clinical trial of MM-398, which we expect to occur in the fourth quarter of 2011. We are required to make up to an aggregate of $205.0 million in additional milestone payments upon the achievement of specified development, regulatory and annual net sales milestones. PharmaEngine is also entitled to tiered royalties on net sales of MM-398 in Europe and certain countries in Asia. The royalty rates under the agreement range from high single digits up to the low teens as a percentage of our net sales of MM-398 in these territories. These obligations have not been included in the above table as the agreement was executed after December 31, 2010.

We are required to pay the holders of series B convertible preferred stock cash dividends of approximately $4.3 million upon the closing of this offering.

Expenditures to contract research organizations represent a significant cost in clinical development. However, our contracts with these research organizations are cancellable at our option upon short notice and do not have cancellation penalties. Therefore, payments to contract research organizations have not been included in the above table.

In January 2010, we received $1.5 million of tax incentives from the Massachusetts Life Sciences Center, or MLSC, an independent agency of the Commonwealth of Massachusetts, which allowed us to monetize approximately $1.4 million of state research and development tax credits. In exchange for these incentives, we pledged to hire 50 employees in 2010 and to maintain the additional headcount through at least December 31, 2014. Failure to do so could result in our being required to repay a portion of these incentives. This contingent obligation has not been included in the above table as we cannot estimate if or when it will become payable.

In January 2011, we received $1.3 million of tax incentives from the MLSC, which allowed us to monetize approximately $1.2 million of state research and development tax credits. In exchange for these incentives, we pledged to hire 50 employees in 2011 and to maintain the

additional headcount through at least December 31, 2015. Failure to do so could result in our being required to repay these incentives. This contingent obligation has not been included in the above table as we cannot estimate if or when it will become payable.

Other than the specific payments noted in the table and as described above, milestone and royalty payments associated with antibody licensing, manufacturing technology licensing costs and other in-licensed collaboration payments have not been included in the above table as management cannot reasonably estimate if or when they will occur. These arrangements include the following:

- Under a collaboration agreement with Dyax Corp., or Dyax, related to antibody identification and evaluation, we are required to make aggregate development and regulatory milestone payments of up to $16.2 million for therapeutic products and aggregate regulatory milestone payments of up $1.0 million for diagnostic products directed to selected targets. We also are required to pay mid single digit royalties on net sales of licensed products.

- Under license agreements with The Regents of the University of California, we are required to make aggregate development and regulatory milestone payments of up to $1.4 million associated with MM-111 and MM-302 and pay royalties in the low single digits on net sales of licensed products.

- In addition to the amounts included in the table above payable to Adimab LLC, we are required to make aggregate development and regulatory milestone payments of up to $52.5 million related to therapeutic antibody licensing costs associated with MM-151 and pay mid single digit royalties on net sales of licensed products.

- Under a license agreement with the U.S. Public Health Service, a division of the U.S. Department of Health and Human Services, we are required to make aggregate development and regulatory milestone payments of up to $6.1 million, per therapeutic licensed product, related to ErbB3 receptor patents associated with MM-121 and MM-111, and pay royalties in the low single digits on net sales of licensed products. The term of the agreement extends until the expiration of the licensed patent rights, which is 2016.

- Under an agreement with Selexis SA, we are required to make aggregate milestone payments of up to €1.0 million, per licensed product, related to the manufacturing of all of our clinical programs, with the exception MM-398, and royalties of less than one percent on net sales of licensed products.

Milestone and royalty payments that we may be required to make to Dyax, the U.S. Public Health Service and Selexis SA related to MM-121 are fully reimbursed by Sanofi under the terms of our license and collaboration agreement. Sanofi is then entitled to deduct 50% of any amount reimbursed against future royalty payments that Sanofi may be required to make to us.

Off-balance sheet arrangements

We did not have during the periods presented, and we do not currently have, any off-balance sheet arrangements, as defined under Securities and Exchange Commission, or SEC, rules.

Tax loss carryforwards

As of December 31, 2010, we had federal net operating loss carryforwards of $88.9 million and state net operating loss carryforwards of $54.2 million, which will begin to expire in 2011. As of December 31, 2010, we had federal research and development and investment tax credit carryforwards of $7.9 million and state research and development and investment tax credit carryforwards of $3.6 million, which also will begin to expire in 2011. Management has evaluated the positive and negative evidence bearing upon the realizability of our deferred tax assets and determined that it is more likely than not we will not recognize the benefits of federal and state deferred tax assets. As a result, we have established a valuation allowance of $81.4 million as of December 31, 2009 and $103.9 million as December 31, 2010. Our ability to use our net operating loss carryforwards and research and development credit carryforwards to offset future taxable income may be subject to a substantial annual limitation under Section 382 of the Internal Revenue Code due to ownership changes that have occurred previously or that could occur in the future. Ownership changes, as defined in Section 382 of the Internal Revenue Code, limit the amount of net operating loss carryforwards and research and development credit carryforwards we can use each year to offset future taxable income and taxes payable. We have not performed a complete study to determine whether an ownership change has occurred or the limit on the future use of our net operating loss carryforwards or research and development credit carryforwards. Any such limitation would reduce our gross deferred tax asset.

Modification of warrants to purchase common stock held by a related party

In August 2010, we modified warrants held by a related party stockholder to purchase 2,596,000 shares of our common stock to extend the expiration dates by four years and increase the exercise prices from $2.12 and $2.47 to $3.00 per share. We valued the modification using a Black-Scholes option valuation model and recognized a $1,803,000 charge to common stock warrants and additional paid-in capital.

Recent accounting pronouncements

In October 2009, the FASB issued Accounting Standard Update No. 2009-13, *Multiple Deliverable Revenue Arrangements,* or ASU 2009-13, which amends existing revenue recognition accounting pronouncements for multiple-deliverable revenue arrangements. ASU 2009-13 provides accounting principles and application guidance on whether multiple deliverables exist, how the arrangement should be separated, and the consideration allocated. ASU 2009-13 eliminates the requirement to establish the fair value of undelivered products and services and instead provides for separate revenue recognition based upon management's estimate of the selling price for an undelivered item in circumstances when there is no other means to determine the fair value of that undelivered item. Multiple-deliverable revenue arrangement guidance previously required that the fair value of the undelivered item be the price of the item either sold in a separate transaction between unrelated third parties or the price charged for each item when the item is sold separately by the vendor. This was difficult to determine when the product was not individually sold because of its unique features. Under the previous guidance, if the fair value of all of the elements in the arrangement was not determinable, then revenue was deferred until all of the items were delivered or fair value was determined. ASU 2009-13 was effective prospectively for revenue arrangements entered into or

materially modified in fiscal years beginning on or after June 15, 2010. We adopted this standard on a prospective basis on January 1, 2011 with no impact.

In April 2010, the FASB issued Accounting Standard Update No. 2010-17, *Revenue Recognition—Milestone Method,* or ASU 2010-17. ASU 2010-17 provides guidance in applying the milestone method of revenue recognition to research or development arrangements. Under this guidance, companies may recognize revenue contingent upon the achievement of a milestone in its entirety, in the period in which the milestone is achieved, only if the milestone meets all the criteria within the guidance to be considered substantive. ASU 2010-17 is effective on a prospective basis for research and development milestones achieved in fiscal years beginning on or after June 15, 2010. We adopted this standard on a prospective basis on January 1, 2011 with no impact.

Quantitative and qualitative disclosures about market risk

We are exposed to market risk related to changes in interest rates. Our current investment policy is to invest our cash in a variety of financial instruments, principally deposits, securities issued by the U.S. government and its agencies and money market instruments. The goals of our investment policy are preservation of capital, fulfillment of liquidity needs and fiduciary control of cash and investments. We also seek to maximize income from our investments without assuming significant risk.

Our primary exposure to market risk is interest income sensitivity, which is affected by changes in the general level of interest rates, particularly because our investments are in short-term marketable securities. Due to the short-term duration of our investment portfolio and the low risk profile of our investments, an immediate 10.0% change in interest rates would not have a material effect on the fair market value of our portfolio. Accordingly, we would not expect our operating results or cash flows to be affected to any significant degree by the effect of a sudden change in market interest rates on our investment portfolio.

We do not believe that our cash, cash equivalents and available-for-sale investments have significant risk of default or illiquidity. While we believe our cash, cash equivalents and available-for-sale investments do not contain excessive risk, we cannot provide absolute assurance that in the future our investments will not be subject to adverse changes in market value. In addition, we maintain significant amounts of cash and cash equivalents at one or more financial institutions that are in excess of federally insured limits.

Business

Overview

We are a biopharmaceutical company discovering, developing and preparing to commercialize innovative medicines consisting of novel therapeutics paired with companion diagnostics. Our mission is to provide patients, physicians and the healthcare system with the tools, medicines and information to transform the approach to care from one based on the identification and treatment of symptoms to one focused on the diagnosis and treatment of illness through a more precise mechanistic understanding of disease. We seek to accomplish our mission by applying our proprietary systems-based approach to biomedical research, which we call Network Biology. Our vision is to apply Network Biology to become a global healthcare enterprise that is founded on leading science and driven to deliver integrated healthcare solutions that improve both the quality of outcomes and the efficiency of care. Our initial focus is in the field of oncology. We have four programs in clinical development, the most advanced of which is expected to enter a pivotal Phase 3 clinical trial by the end of 2011.

Network Biology is an interdisciplinary approach to drug discovery and development. It focuses on understanding how the complex molecular interactions that occur within cell signaling pathways, or networks, regulate cell decisions and how network dysfunction leads to disease. Our approach integrates proprietary, high-throughput, dynamic biological data with engineering, analytical and modeling expertise. Our capabilities allow us to build computational models of cell biology as a basis for drug discovery, design and predictive development. We apply Network Biology throughout the research and development process, including for target identification, lead compound design and optimization, diagnostic discovery, *in vitro* and *in vivo* predictive development and the design of clinical trial protocols. We believe that drug discovery and development using Network Biology is more efficient and productive than traditional approaches.

We currently have four targeted therapeutic oncology candidates in clinical development and a fifth that we expect to enter clinical development in the third quarter of 2011. Additionally, we have multiple product candidates in preclinical development and a discovery effort advancing additional candidate medicines. We have tailored each of our five most advanced product candidates to target specific disease mechanisms that our research suggests are common across many solid tumor types. We believe that these product candidates have the potential to address major unmet medical needs.

Our most advanced product candidates are MM-398, MM-121, MM-111, MM-302 and MM-151.

- MM-398 is a novel, stable nanotherapeutic encapsulation of the marketed chemotherapy drug irinotecan. MM-398 recently achieved its primary efficacy endpoints in two Phase 2 clinical trials, one in pancreatic cancer patients and one in gastric cancer patients. We are preparing to initiate a pivotal Phase 3 clinical trial of MM-398 for the treatment of patients with metastatic pancreatic cancer who have previously failed treatment with the chemotherapy drug gemcitabine. We believe that MM-398 has potential uses in multiple other indications, including colorectal cancer, lung cancer and glioma. There are multiple ongoing Phase 1 and Phase 2 clinical trials of MM-398.

- MM-121 is a fully human monoclonal antibody that targets ErbB3, a cell surface receptor implicated in cancer. Our research suggests that ErbB3 is critical to the growth and survival of

tumors and that use of ErbB3 as a resistance mechanism by cancer cells is common across patient populations and tumor types. MM-121 is designed to inhibit cancer growth directly, restore sensitivity to drugs to which a tumor has become resistant and delay the development of resistance of a tumor to other agents. In collaboration with Sanofi, we are conducting a clinical program to test MM-121 in combination with both chemotherapies and other targeted agents across a wide spectrum of solid tumor patient populations, including patients with lung, breast and ovarian cancers.

- MM-111 is a bispecific antibody designed to target cancer cells that are characterized by overexpression of the ErbB2 cell receptor, also referred to as HER2. Our research suggests that a complex including ErbB2 (HER2) and ErbB3 is a powerful promoter of tumor growth and survival when stimulated by signaling molecules called ligands. MM-111 is designed to uniquely address the signaling from this complex of molecules. We believe that MM-111 is potentially applicable across a broad range of solid tumors. We are conducting multiple Phase 1 clinical trials of MM-111 in monotherapy and combination therapy settings.

- MM-302 is a nanotherapeutic encapsulation of doxorubicin with attached antibodies that target the ErbB2 (HER2) receptor. We designed MM-302 to bind to cancer cells that overexpress ErbB2 (HER2) and thereby release doxorubicin at the site of the tumor. Our goal is for MM-302 to retain the safety profile of liposomal doxorubicin, in particular with respect to cardiac safety, but to have better efficacy in ErbB2 (HER2) positive tumors. We are screening patients for Phase 1 clinical testing of MM-302 and are preparing to dose the first patient.

- MM-151 is an oligoclonal therapeutic consisting of a mixture of three fully human monoclonal antibodies designed to bind to non-overlapping regions, or epitopes, of the epidermal growth factor receptor, or EGFR. EGFR is also known as ErbB1. EGFR (ErbB1) has long been recognized as an important drug target in several malignancies, including lung, breast, colon, head and neck and pancreatic cancers. We anticipate submitting an investigational new drug application, or IND, to the U.S. Food and Drug Administration, or FDA, for MM-151 in the third quarter of 2011.

We are developing companion diagnostics for use with each of our therapeutic oncology product candidates. We use Network Biology in identifying biomarkers, which are biophysical or biochemical markers of cancer, and developing them into companion diagnostic agents for use with our therapeutic products. We believe that companion diagnostics will allow us to improve the efficiency and productivity of our clinical development and enhance the potential efficacy and pharmacoeconomic benefit of our therapeutics.

Our strategy

Our goal is to build a global healthcare enterprise founded on a leading understanding of complex biology through the use of our Network Biology approach. Key elements of our strategy to achieve this goal are:

- *Strengthen and expand our core Network Biology capabilities.* Network Biology is critical to our ability to explore, model and understand complex biology and is the core of our drug discovery and development efforts. We apply Network Biology across all of our development programs. We intend to increase our investment in the technologies, methods and know-how

that comprise our Network Biology capabilities. We also plan to expand the scope of the therapeutic areas and biological processes we explore with Network Biology.

- *Foster an integrated, multidisciplinary model of drug discovery, clinical development, manufacturing and commercialization.* We believe that an integrated, multidisciplinary team approach is essential to our productivity, innovation and retention of knowledge across all of our processes from research through manufacturing. To continue to foster this collaborative environment, we plan to invest in recruiting and retaining top talent and professional development for all of our employees and to focus on establishing and maintaining strong relationships with researchers, physicians and patients. We intend to extend our multidisciplinary team approach into our planned commercial organization and to market our product candidates with the same science and information based passion with which they are developed.

- *Develop a companion diagnostic for each of our therapeutic oncology product candidates.* We are investing in the development of companion diagnostics to support our therapeutic oncology product candidates so as to guide their use and enhance their benefit for patients and the healthcare system. It is our long term vision to combine these individual tests into a unified cancer diagnostic that can aid in the prescription of multiple therapeutics and treatment combinations based on the profile of a tumor.

- *Establish sales and marketing capabilities.* We generally expect to retain commercial rights in the United States and Europe for our oncology product candidates, other than MM-121. Subject to receiving marketing approvals, we plan to commence commercialization activities by building a focused sales and marketing organization to establish relationships with the community of oncologists who are the key specialists in treating solid tumors.

Network Biology

Merrimack was founded by a team of scientists from The Massachusetts Institute of Technology, and Harvard University seeking to develop a systems biology-based approach to biomedical research. Fundamentally, systems biology is the study of the complex molecular interactions that regulate the cellular decisions that drive the functioning of living organisms. The core of our approach to systems biology is a multidisciplinary and multitechnology capability to build functional and predictive computational models of biological systems, such as cell signaling networks, that allow us to engineer treatments that are directed at the mechanisms of disease.

Traditional biomedical research has focused on the characterization of the activity of individual molecular components, such as protein expression levels or gene mutation status, as the basis for selecting drug targets and new drug candidates. Unfortunately, the high rate of clinical failures suggests that few complex disease states are caused and perpetuated by only one molecular component. We believe that Network Biology gives us a critical tool to discover and develop better medicines by allowing us to move beyond these one dimensional measures of molecular activity to an understanding of the system dynamics that govern cell decisions.

Network Biology and patient care

The goal of Network Biology is to deliver better treatments for complex diseases. We use Network Biology to obtain an understanding of the dynamics that govern cell signaling networks and how dysfunction in these networks leads to and perpetuates disease. We believe

that Network Biology may provide broader insight into disease and the potential therapeutic alternatives for physicians and patients. In particular, we believe that Network Biology may provide three key benefits:

- stratification of disease by the underlying mechanisms promoting tumor growth and survival;
- novel medicines designed to take into account the complexity of cell signaling networks within a tumor cell; and
- integrated medicines that provide a diagnostic and therapeutic to help guide treatment.

Stratification of disease by the underlying mechanisms promoting tumor growth and survival

To date, much of the study of cancer has focused on tumors characterized by a single overexpressed receptor or a mutated regulatory gene, also known as oncogene induced cancers. While these types of cancer are relatively easy to discern, we believe that they are actually somewhat rare.

Our research suggests that identifying the cell signaling networks that are used by a patient's tumor will enable more precise mechanistic diagnosis. Based on our research on the mechanisms underlying cancer, we believe that the abnormal growth of tumor cells is due to the development of addictions to one or more signaling networks in response to stress. Once a cell has been stressed, its systems begin to compensate, in particular by activating additional growth signaling.

In order to identify the signaling networks that are used by cancer cells for growth and survival, we perform experiments that we refer to as Critical Network Identification. In one such experiment, we studied 60 solid tumor types from the National Cancer Institute's panel of tumor cell lines. This analysis revealed that, while there are many different types of cancer reflecting diverse genetic backgrounds, these cancers rely on a relatively limited number of cell signaling networks for growth and survival. We believe that developing drugs that effectively inhibit these signaling mechanisms, independent of the type or nature of the stressor, may provide a comprehensive treatment.

Novel medicines designed to take into account the complexity of cell signaling networks within a tumor cell

All cells function by means of signaling networks. Critical signals related to functions, such as growth and survival, are regulated via complex networks of extracellular and intracellular molecular entities that are organized into individual biological pathways. These pathways compete and cooperate with one another to drive particular cellular decisions or outcomes. We use the detailed understanding of the most active signaling networks within a tumor cell that we obtain from Network Biology to guide the design of targeted therapeutics that we believe will intervene and affect the activity of these networks.

A Critical Network Identification screen confirmed that one of these networks, the ErbB pathway, is a significant survival network utilized by tumor cells. This pathway is made up of four receptors: EGFR (ErbB1), ErbB2 (HER2), ErbB3 and ErbB4. Several currently approved therapies are directed at targets in the ErbB pathway. In particular, EGFR (ErbB1) and ErbB2 (HER2) have been the focus of modern pharmaceutical efforts due to their overexpression in many tumor cells relative to their expression in normal tissue. However, using Network Biology to understand the complex signaling dynamics that govern this pathway, our research

suggested that ErbB3 is the most sensitive target. This was an unconventional conclusion because, in contrast to EGFR (ErbB1) and ErbB2 (HER2), ErbB3 does not have an active kinase domain, a common drug target. In addition, ErbB3 is not expressed in tumors at levels nearly as high as those seen with EGFR (ErbB1) and ErbB2 (HER2).

Thus, despite being aware of the existence of ErbB3, scientists largely ignored ErbB3 as a drug target prior to our research. In our research, we found that within the ErbB pathway, blocking ErbB3 had the largest impact on inhibiting the survival signal that perpetuates the growth of tumor cells addicted to this network. Our analysis assessed signal transmission and communication, which we believe is a more accurate measure of disease mechanism than simply examining the characteristics of different proteins, such as expression level or mutation status, in isolation.

Integrated medicines that provide a diagnostic and therapeutic to help guide treatment

Using Network Biology, we are incorporating the identification of biomarkers and the development of companion diagnostics into the drug development process. We believe that a companion diagnostic for a therapeutic agent should provide a precise molecular measurement of the nature of the tumor, rather than simply identifying the qualitative overexpression of a protein. We are also of the view that cancer continues to alter its means of growth and survival over time, often in response to the additional stress of treatment. As a result, we believe that frequent assessment of patients' cancers during treatment are helpful to gain insight into which resistance mechanism a cancer defers once treatment has altered the tumor's mechanism of growth and survival.

Ultimately, we intend all of our oncology candidates to be integrated medicines consisting of:

- a therapeutic designed to work in tumors with a specific molecular profile;
- diagnostics that measure the biochemical and biophysical properties that characterize the molecular profiles of tumors; and
- analytical algorithms to translate quantitative diagnostic data into treatment information.

We are currently developing predictive tests for companion diagnostics to identify patient populations who would preferentially respond to our therapeutic product candidates. In our preclinical work, we have used predictive development, which involves modeling and simulation, in an effort to understand and eventually predict how a tumor cell will respond to treatment. For example, in designing our ErbB3 inhibitor, MM-121, we utilized predictive development to understand how blocking signaling through ErbB3 would impact cell growth in several tumor cell lines. We quantitatively measured the expression level of multiple biomarkers to predict the activity of MM-121 in specific xenograft models, which are human tumors that have been implanted in mice. Based on our simulations and biomarker analysis, we were able to successfully and accurately predict response to MM-121 in 20 different xenograft tumor models. We are now actively translating this predictive test into a companion diagnostic that can be paired with MM-121 for human treatment.

Our current diagnostic development efforts are focused on developing assays and algorithms that support a physician's determination of whether an individual therapeutic is appropriate for a given patient population. We intend to develop and commercialize future diagnostics that combine our research understanding across multiple cell signaling networks and in multiple tumors with varying biophysical characteristics to support physician treatment decisions for all classes of cancer therapeutics.

We believe that integrated medicines may enable physicians to deliver the right drug to the right set of patients at the right time. If we are successful, we may be able to:

- improve patient outcomes by providing improved therapeutics along with the diagnostic information to guide physician treatment decisions;
- reduce the overall costs of treating and caring for cancer patients; and
- provide a basis for seeking favorable reimbursement of approved drugs from payors because of the benefits to patients.

Network Biology's potential impact on the drug development process

In addition to improving patient care, we believe that Network Biology can increase the productivity of biomedical research, increase the probability of approval for new drugs and produce more precisely targeted therapeutics. We believe that our therapeutic oncology product candidates will have a greater probability of success than product candidates based on conventional drug development because Network Biology provides us with:

- a multidisciplinary, integrated approach to understanding complex biology;
- simulation and modeling capabilities that aid in the efficiency and productivity of development; and
- the capability to design and build a broad range of therapeutic product candidates without being limited to a particular drug design technology or target class.

A multidisciplinary, integrated approach to understanding complex biology

Network Biology incorporates biology, modeling, simulation and mathematics, which we use to build computational models of cell signaling pathways. This requires a focus on new types of data to understand the dynamic interactions that occur within biological systems. This biological data must be quantitative, kinetic and multiplexed to capture the breadth and depth of the parallel and often redundant signaling processes that occur within cells. We also use this approach to construct computational models that explain biophysical distribution of drugs, pharmacokinetics, which is the process by which a drug is absorbed, distributed and metabolized by the body, and pharmacodynamics, which is the biochemical and physiological effect of the drug on the body. Using our robust quantitative understanding of the complexity of cell signaling, we design drugs and drug combinations that we believe will effectively inhibit tumor growth and survival.

Simulation and modeling capabilities that aid in the efficiency and productivity of development

We believe that Network Biology improves our decision making throughout the research and development process by providing our scientists with tools to simulate hypotheses in computer models and then test these hypotheses in preclinical and clinical settings. This process provides a comprehensive view of the biologic system that we are addressing and facilitates knowledge retention throughout the project. For example, as is the industry standard, preclinical development of our therapeutic product candidates includes testing our drugs in xenograft tumor models. However, our ability to model cell signaling pathways allows us to choose which xenograft tumor model we believe will be well suited for a particular program, as we did for both MM-121 and MM-111.

We believe that our simulation and modeling capabilities enable us to:

- assess our product candidates within a broad range of biological conditions so that we can make informed judgments as to which indications to pursue;
- based on these judgments, select preclinical tests for the cost-effective and expeditious development of our product candidates; and
- initiate clinical development programs that are based on hypotheses validated in the preclinical setting.

The capability to design and build a broad range of therapeutic product candidates without being limited to a particular drug design technology or target class

We apply the insights about cell signaling dynamics that we gain from our Network Biology approach across a range of therapeutic technologies to design product candidates that we believe can be efficiently delivered to the selected molecular target. We believe that the best drugs for the oncology indications that are the initial focus of our business are targeted therapies that, in contrast with conventional chemotherapies, are highly selective for the molecular mechanisms that we are seeking to affect and, therefore, offer the potential for significant efficacy and safety benefits.

The breadth of our therapeutic design capabilities is shown by the five different designs of our five most advanced product candidates. These product candidates consist of a nanotherapeutic, a monoclonal antibody, a bispecific antibody designed to simultaneously bind to two different target cell surface receptors, an antibody-targeted nanotherapeutic and an oligoclonal antibody consisting of a mixture of three different antibodies. Each of these product candidates is designed with specific characteristics that we believe are well suited for the type of disease mechanism that we are targeting.

Application of Network Biology beyond cancer

We believe that our Network Biology approach is applicable to a broad range of therapeutic areas beyond cancer, including bone and joint conditions, infectious disease, inflammation, central nervous system disease and other areas of medicine with high unmet needs. While we may pursue some of these disease areas directly ourselves, because of the potential of very broad applicability of our Network Biology approach, our plan is to pursue many or all of these other areas through collaborations, licenses and other arrangements with third parties. As an

example, in 2010, we established Silver Creek Pharmaceuticals, Inc., or Silver Creek, to apply our Network Biology approach to the research, development and commercialization of pharmaceuticals in the regenerative medicine field. Silver Creek is now a majority-owned subsidiary of ours with the minority equity held by third party investors.

Our most advanced product candidates

The following table summarizes key information about our five most advanced therapeutic product candidates. All of these product candidates are designed for intravenous administration.

Program	Indication	Stage of development	Commercial rights
MM-398 (nanotherapeutic encapsulation of irinotecan)	Monotherapy in pancreatic	Phase 3 planned Phase 2 ongoing	Merrimack worldwide, except Taiwan
	MM-398 plus 5-FU and leucovorin in colorectal	Phase 2 ongoing	
	Monotherapy in colorectal	Phase 1 ongoing	
	Monotherapy in gastric	Phase 2 complete	
	Monotherapy in glioma	Phase 1 ongoing	
MM-121 (ErbB3 targeted monoclonal antibody)	MM-121 plus exemestane in hormone-sensitive breast	Phase 2 ongoing	Sanofi worldwide; Merrimack holds option to co-promote in United States
	MM-121 plus erlotinib in non-small cell lung	Phase 2 planned Phase 1 ongoing	
	MM-121 plus paclitaxel in ErbB2 (HER2) negative breast, ovarian and other gynecological	Phase 1 ongoing	
	Solid tumors, monotherapy	Phase 1 ongoing	
	Solid tumors, combination therapy	Various Phase 2 and Phase 1 trials planned	
MM-111 (ErbB3 and ErbB2 (HER2) targeted bispecific antibody)	Monotherapy in ErbB2 (HER2) positive indications	Phase 1 ongoing	Merrimack worldwide
	MM-111 plus trastuzumab in ErbB2 (HER2) positive breast	Phase 1 ongoing	
	Multi-arm combination therapy safety trial	Phase 1 ongoing	
MM-302 (ErbB2 (HER2) targeted nanotherapeutic encapsulation of doxorubicin)	Monotherapy in ErbB2 (HER2) positive breast	Phase 1 ongoing	Merrimack worldwide
MM-151 (EGFR (ErbB1) targeted oligoclonal antibody)	Monotherapy safety trial	IND filing and Phase 1 planned	Merrimack worldwide

We are developing companion diagnostics for each of the above therapeutic candidates. We plan to file an Investigational Device Exemption, or IDE, with the FDA prior to initiating clinical trials of each of our companion diagnostics to validate their prospective use.

Cancer

The initial focus of our business is to apply our Network Biology approach to the development of therapeutics and companion diagnostics for the treatment of solid tumor cancers. Cancer is the second most common cause of death in the United States, exceeded only by heart disease. In the United States, cancer accounts for almost one of every four deaths. The National Institutes of Health estimates that the direct medical cost of cancer of all types, including solid tumors, in the United States in 2010 was more than $100 billion.

Solid tumor market

The following table sets forth information about the solid tumor cancers for which we are developing therapeutic product candidates and companion diagnostics. The U.S. annual incidence and five year relative survival rates are based on information from the American Cancer Society in 2011. Relative survival compares survival among cancer patients to that of people not diagnosed with cancer who are of the same age, race and sex. It represents the percentage of cancer patients who are alive after a designated time period relative to persons without cancer.

Tumor type	U.S. annual incidence	Five year relative survival rate	Selected marketed therapies
Pancreatic	44,030	6%	gemcitabine (Gemzar); erlotinib (Tarceva)
Colorectal	141,210	65%	oxaliplatin (Eloxatin); irinotecan (Camptosar); bevacizumab (Avastin); cetuxumab (Erbitux); panitumumab (Vectibix)
Gastric	21,520	26%	capecitabine (Xeloda); trastuzumab (Herceptin)
Brain and other nervous system cancers	22,340	36%	temozolomide (Temodar); carmustine (BiCNU); polifeprosan 20 with carmustine implant (Gliadel); bevacizumab (Avastin)
Breast	230,480	89%	trastuzumab (Herceptin); docetaxel (Taxotere); paclitaxel (Taxol, Abraxane); capecitabine (Xeloda); anastrazole (Arimidex); letrozole (Femara); exemestane (Aromasin)
Lung and bronchus	221,130	16%	docetaxel (Taxotere); gemcitabine (Gemzar); pemtrexed (Alimta); gefitinib (Iressa); erlotinib (Tarceva); bevacizumab (Avastin); paclitaxel (Taxol)
Ovarian	21,990	46%	liposomal doxorubicin (Doxil)

In addition to the marketed therapies listed above, there are many generic chemotherapies and regimens commonly used to treat these cancers. Although the various marketed therapies and regimens provide benefits to some patients when given as monotherapies or in combination with other therapies, each has efficacy and adverse event limitations and none of them are successful in treating all patients. The level of morbidity and mortality from these cancers remains high.

Outcome measures

There are a number of standard efficacy endpoints that clinicians use to measure outcomes for clinical trials for cancer therapies. The following are explanations of the meanings of the various efficacy endpoints that we are using in our ongoing and planned clinical trials for our product candidates, as described in more detail below:

- Overall survival (OS): survival from the initiation of treatment.
- Complete response (CR): disappearance of all target lesions and non-target lesions.

- Partial response (PR): overall tumor regression based on a decrease of at least 30% in the sum of measured tumor diameters with no new tumors.
- Progression free survival (PFS): time to tumor progression from the initiation of treatment based on an increase of at least 20% in the sum of measured tumor diameters with no new tumors.
- Progressive disease (PD): growth of at least 20% in the size of the tumor or spread of the tumor since beginning of treatment.
- Stable disease (SD): neither sufficient decrease in tumor size to qualify for partial response (PR) nor sufficient increase in tumor size to qualify for progressive disease (PD).
- Objective response rate (ORR): complete response (CR) plus partial response (PR).
- Disease control rate (DCR): complete response (CR) plus partial response (PR) plus stable disease (SD) for a specified period of time, also known as clinical benefit rate.
- Duration of response: amount of time a patient shows an objective tumor response.

Adverse event grading

Clinicians typically classify adverse events observed in clinical trials of cancer therapies based on a standard grading system as follows:

- Grade 1—mild.
- Grade 2—moderate.
- Grade 3—severe.
- Grade 4—potentially life threatening or disabling.
- Grade 5—death.

MM-398

Overview

MM-398 is a novel, stable nanotherapeutic encapsulation of the marketed chemotherapy drug irinotecan. MM-398 recently achieved its primary efficacy endpoints in two Phase 2 clinical trials, one in pancreatic cancer patients and one in gastric cancer patients. We are preparing to initiate a pivotal Phase 3 clinical trial of MM-398 for the treatment of patients with metastatic pancreatic cancer who have previously failed treatment with the chemotherapy drug gemcitabine (Gemzar). We plan to initiate this trial by the end of 2011. We are simultaneously working to develop an imaging agent that can be used as a companion diagnostic to identify the patient population likely to respond to treatment with MM-398. We plan to develop MM-398 for a range of other solid tumor indications, including colorectal cancer, lung cancer and glioma.

Gemcitabine is the current standard of care in the first-line treatment of metastatic pancreatic cancer. Multiple studies of gemcitabine published in peer reviewed medical journals in the first-line setting for this indication have shown median overall survival (OS) in the range of five to seven months, with median progression free survival (PFS) of two to four months and 12 month survival of approximately 20%.

There are currently no approved treatments for gemcitabine refractory metastatic pancreatic cancer, nor is there a consensus on standard of care treatment for such patients. A limited amount of data suggest that, absent additional therapies, metastatic pancreatic patients refractory to gemcitabine on average can expect to live approximately two months. These patients currently receive chemotherapy combinations, usually containing one or more of gemcitabine, capecitabine (Xeloda), oxaliplatin (Eloxatin), leucovorin or fluorouracil, or 5-FU.

There are a number of agents currently being tested in combination regimens as both first-line and second-line therapy for metastatic pancreatic cancer. In a recent Phase 3 clinical trial in first-line metastatic pancreatic cancer comparing gemcitabine with the regimen known as FOLFIRINOX, which is a combination of oxaliplatin, leucovorin, 5-FU and irinotecan, published in *The New England Journal of Medicine*, patients dosed with FOLFIRINOX showed a statistically significant increase in objective response rate (ORR) and overall survival (OS) compared to patients dosed with gemcitabine. However, the results in this trial suggested FOLFIRINOX is most appropriate for patients with good performance status, or general well-being, because of adverse events observed in the FOLFIRINOX group. Patients dosed with FOLFIRINOX showed statistically significant increases in grade 3 and grade 4 adverse events, including neutropenia, febrile neutropenia, thrombocytopenia, diarrhea and sensory neuropathy, compared to patients dosed with gemcitabine.

Design and potential advantages of MM-398

MM-398 is designed to stably retain and protect irinotecan while in circulation in the body and enable efficient accumulation of the drug in solid tumors. Our nanotherapeutics consist of lipidic particles, which are enclosed spheres of lipid membranes, and are designed to encapsulate active drug payloads. The encapsulated active agent of MM-398, irinotecan, is a well known and widely used chemotherapy. Irinotecan is a pro-drug of SN-38. SN-38 potently arrests cell growth by inhibiting topoisomerase 1, an enzyme involved in cell replication. Typically, free irinotecan is metabolized in the liver into SN-38, and from there SN-38 circulates throughout the body. Dosing with irinotecan, as with other chemotherapies, is limited by severe adverse effects that, in turn, limit efficacy. In addition, as with other chemotherapies, the efficacy of irinotecan is limited by tumor resistance mechanisms.

We believe that the nanotherapeutic encapsulation of irinotecan yields a number of favorable attributes that will lead to increased efficacy and fewer adverse events in comparison with free irinotecan.

- We believe that the encapsulation technology prevents the premature metabolism of the active drug and thereby reduces systemic exposure and increases the amount of active drug available to be delivered at the tumor site.

- The specific size and stability characteristics of MM-398 are designed to enable the preferential deposition of the drug within tumors relative to normal tissue. Specifically, we believe that, as a nanotherapeutic, MM-398 is able to utilize the enhanced permeability and retention, or EPR, effect to selectively enter, and subsequently be trapped in, tumors with leaky vasculature.

- MM-398 is designed for the irinotecan inside the molecule to be converted into SN-38 locally by tumor-resident macrophages, rather than being converted in the liver, as occurs with free irinotecan. We believe that MM-398 utilizes tumor macrophages to both break down the

nanotherapeutic and convert the irinotecan into SN-38 in the local tumor environment, thereby preventing tissues surrounding the tumor from blocking SN-38's access to the tumor, as occurs case with traditional chemotherapies. Overall, the design of MM-398 is intended to increase the local concentration of active drug so as to improve its anti-tumor effects, especially for hard to treat tumors.

Clinical development of MM-398

We are pursuing two approaches in the ongoing clinical development of MM-398:

- *Replace irinotecan.* The FDA approved irinotecan as Camptosar in 1994 for use in colorectal cancer. Before losing patent coverage, worldwide sales of Camptosar exceeded $1.0 billion annually. In clinical practice, irinotecan is currently used as a monotherapy or combination therapy in multiple cancer indications, including pancreatic, colorectal, lung, ovarian, stomach, breast, leukemia, lymphoma and cervical cancers. One of our clinical development strategies is to replace the use of irinotecan with MM-398 by demonstrating that MM-398 has favorable efficacy and safety characteristics compared to irinotecan.

- *Expand into new indications.* Chemotherapies are widely used in the treatment of cancer from the neoadjuvant setting, in which the goal of treatment is to reduce the size of a tumor so that it can be completely removed by surgery or other means, through late stage cancer treatment. The use of chemotherapies is limited by severe adverse effects that, in turn, limit their efficacy. Our second clinical development strategy is to expand the use of MM-398 into indications for which irinotecan is currently not being used by demonstrating that MM-398 has favorable efficacy and safety characteristics compared to the current standard of care.

Prior to May 2011, our collaborator, PharmaEngine, Inc. or PharmaEngine, led the clinical development of MM-398 under the designation PEP02. In May 2011, we entered into an agreement with PharmaEngine through which we now hold the development and commercialization rights to MM-398 worldwide, other than in Taiwan. We expect that we or third party investigator sponsors will conduct all new clinical trials of MM-398, including the planned Phase 3 clinical trial of MM-398 for the treatment of metastatic pancreatic cancer.

Pancreatic cancer

Planned Phase 3 clinical trial

We are planning a randomized, open label, controlled, pivotal Phase 3 clinical trial of MM-398 in patients with metastatic pancreatic cancer who have previously failed treatment with gemcitabine. The trial is being designed to compare the efficacy of MM-398 against the combination of 5-FU and leucovorin, which is one of the drug combinations that clinicians use to treat patients with metastatic pancreatic cancer who have failed treatment with gemcitabine. We expect this trial to enroll approximately 200 patients at approximately 70 sites in North America, Europe, Asia and Africa. We expect that the primary efficacy endpoint of this trial will be a statistically significant difference in overall survival (OS) between MM-398 and the combination of 5-FU and leucovorin and that secondary endpoints will include objective response rate (ORR) and progression free survival (PFS). We plan to initiate this trial by the end of 2011.

Phase 2 clinical trial

MM-398 is currently being evaluated in an open label, single arm Phase 2 clinical trial in 40 patients with metastatic pancreatic cancer who had previously failed treatment with gemcitabine. Patients receive 120 mg/m^2 of MM-398 once every three weeks. This trial is being conducted at three sites, two in Taiwan and a third at the University of California, San Francisco, and has completed enrollment. The trial is being conducted by PharmaEngine. As of May 31, 2011, a total of seven patients in this trial were still alive and two of these patients were still undergoing treatment with MM-398.

The primary efficacy endpoint of this trial is the three month survival rate. The hypothesis of our clinical trial was that absent further therapies, 40% of these patients would survive three months. Success in the MM-398 Phase 2 clinical trial was defined as achieving a three month survival rate of 65%. The trial was successful as 75% of patients survived three months or longer. The secondary efficacy endpoints in this trial were objective response rate (ORR), progression free survival (PFS) and overall survival (OS). The objective response rate (ORR) was 7.5%, with three patients achieving a partial response (PR). The median progression free survival (PFS) was 9.6 weeks, and median overall survival (OS) was 22.4 weeks.

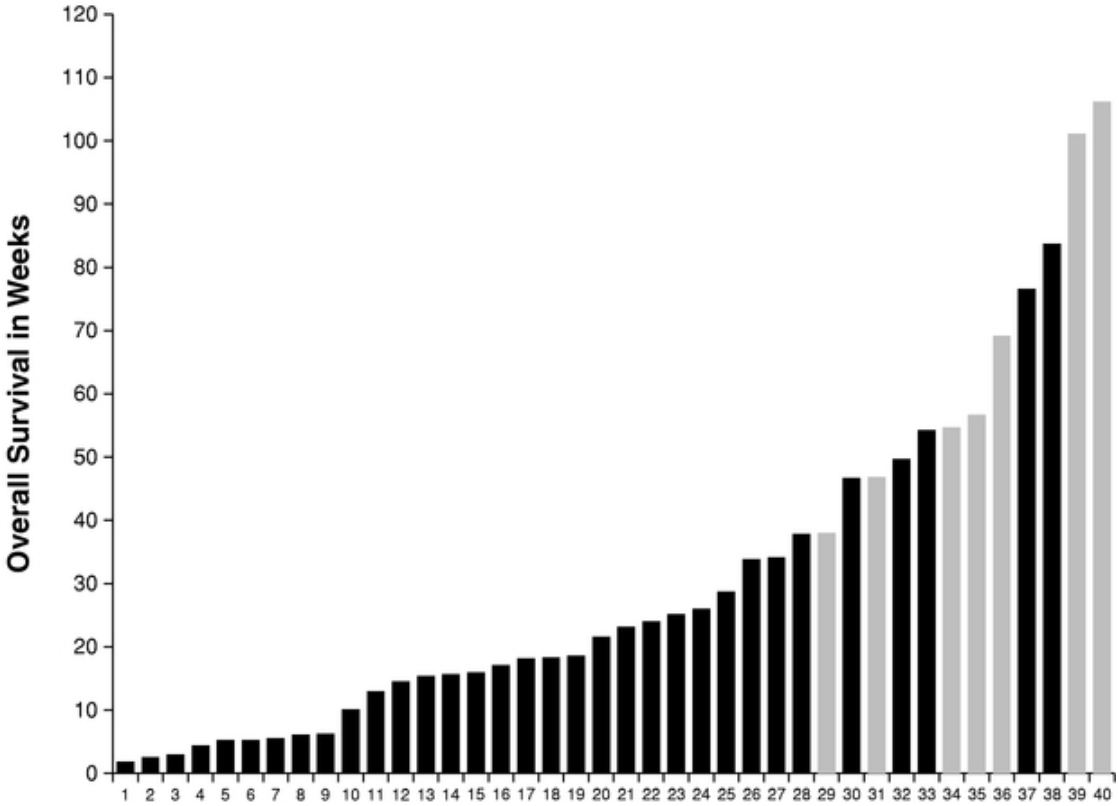
The trial had the following additional key highlights as of May 31, 2011:

- As shown in the waterfall plot below, 16 patients survived longer than six months and eight of those patients, or 20% overall, survived for greater than one year. In addition, two patients remained alive who had not yet reached the one year time point. Gemcitabine was approved as a first-line treatment for pancreatic cancer based on a one year survival rate of 18%.

- Initially, one of the eight patients who survived one year had a tumor that was not able to be surgically removed. However, while receiving treatment with MM-398, the tumor shrank sufficiently that the patient could undergo surgery, and the tumor was surgically removed. As of May 31, 2011, this patient was still alive.

- Three patients achieved a partial response (PR) and 16 patients had stable disease (SD) at six weeks, resulting in a disease control rate (DCR) at six weeks of 47.5%.

The chart below shows the overall survival (OS) of each patient in this trial. Each bar represents a different patient, and the height of the bar represents how long that patient survived. The black bars represent patients who have died, while the gray bars represent those who are still alive as of May 31, 2011.



The following table summarizes the grade 3 and grade 4 adverse events observed in this trial.

Adverse event	Patients (n = 40)
Neutropenia	12 (30.0%)
Leucopenia	9 (22.5%)
Anemia	6 (15.0%)
Diarrhea	3 (7.5%)
Fatigue	3 (7.5%)
Nausea	2 (5.0%)
Vomiting	2 (5.0%)
Thrombocytopenia	2 (5.0%)

Colorectal cancer

Phase 2 clinical trial

MM-398 is currently being evaluated in a randomized, open label Phase 2 clinical trial to compare the efficacy of FUPEP, which is a regimen of 5-FU, leucovorin and MM-398, to FOLFIRI, which is a regimen of 5-FU, leucovorin and irinotecan. The trial protocol calls for enrollment of

88 patients with second-line metastatic colorectal cancer. We are currently recruiting patients at approximately four sites in France. The primary efficacy endpoint of this trial is objective response rate (ORR). Secondary endpoints include progression free survival (PFS) and overall survival (OS). GERCOR, a cooperative research group of physicians based in France, is conducting this trial.

Phase 1 clinical trial

MM-398 is currently being evaluated in an open label, dose escalation Phase 1 clinical trial of MM-398 in patients with colorectal cancer who have previously failed treatment with the chemotherapy drug oxaliplatin. The trial protocol calls for enrollment of approximately 30 patients at one site in Taiwan. The trial has enrolled 17 patients as of May 31, 2011. The purpose of this trial is to assess safety and determine the maximum tolerated dose. The National Health Research Institute of Taiwan is conducting this trial.

Gastric cancer

Phase 2 clinical trial

MM-398 was recently evaluated in a randomized, blinded Phase 2 clinical trial comparing the efficacy of MM-398 to each of irinotecan and docetaxel (Taxotere) in 132 patients with metastatic gastric or gastroesophageal junction adenocarcinoma who had failed one previous therapy. The patients were randomized into three groups of 44 patients each. Patients were dosed at 22 sites in six countries in Europe and Asia. Patients were randomized to receive 120 mg/m^2 of MM-398 every three weeks, 300 mg/m^2 of irinotecan every three weeks or 75 mg/m^2 of docetaxel every three weeks.

The primary efficacy endpoint of this trial was objective response rate (ORR). Success was prospectively defined as five or more patients in an arm achieving a complete or partial response. MM-398 (six patients) and docetaxel (seven patients) met the primary endpoint, but free irinotecan did not. The secondary efficacy endpoints were disease control rate (DCR), progression free survival (PFS) and overall survival (OS). The following table summarizes the efficacy data for this trial.

Response	MM-398 (n=44)	Irinotecan (n=44)	Docetaxel (n=44)
ORR	6 (13.6%)	3 (6.8%)	7 (15.9%)
DCR at six weeks	27 (61.4%)	27 (61.4%)	24 (54.6%)
Median PFS (days)	81	79.5	82
Median OS (days)	218	235	219

The following tables summarize the grade 3 and grade 4 adverse events observed in this trial.

Adverse event	MM-398 (n=44)	Irinotecan (n=44)	Docetaxel (n=44)
Hematological			
Neutropenia	5 (11.4%)	7 (15.9%)	7 (15.9%)
Febrile Neutropenia	3 (6.8%)	5 (11.3%)	2 (4.6%)
Anemia	2 (4.5%)	2 (4.5%)	3 (6.8%)
Thrombocytopenia	1 (2.3%)	1 (2.3%)	0 (0.0%)
Non-hematological			
Diarrhea	12 (27.3%)	8 (18.2%)	1 (2.3%)
Nausea	5 (11.4%)	2 (4.6%)	0 (0.0%)
Vomiting	2 (4.6%)	6 (13.6%)	3 (6.8%)
Nail change / hand-foot-syndrome	0 (0.0%)	0 (0.0%)	1 (2.3%)
Anorexia	3 (6.8%)	3 (6.8%)	0 (0.0%)
Fatigue	2 (4.6%)	1 (2.3%)	1 (2.3%)

In addition to the data shown above, we performed a subgroup analysis on the MM-398 group based on the two different dose levels that patients received. 39 of the 44 patients who received MM-398 were treated at 120 mg/m^2. The remaining five patients were treated at 150 mg/m^2. As summarized in the following table, patients at the higher dose showed better outcomes with respect to both the primary and secondary endpoints.

Response	Dose 120 mg/m^2 (n=39)	Dose 150 mg/m^2 (n=5)	Total (n=44)
ORR	3 (7.7%)	3 (60.0%)	6 (13.6%)
DCR	22 (56.4%)	5 (100.0%)	27 (61.4%)
Median PFS (days)	77	181	81
Median OS (days)	181	235	218

The following table summarizes the grade 3 and grade 4 adverse events observed in these subgroups.

Adverse event	Dose 120 mg/m^2 (n=39)	Dose 150 mg/m^2 (n=5)	Total (n=44)
Hematological			
Neutropenia	5 (12.8%)	0 (0.0%)	5 (11.4%)
Febrile Neutropenia	3 (7.7%)	0 (0.0%)	3 (6.8%)
Anemia	0 (0.0%)	2 (40.0%)	2 (4.5%)
Thrombocytopenia	0 (0/0%)	1 (20.0%)	1 (2.3%)
Non-hematological			
Diarrhea	11 (28.2%)	1 (20.0%)	12 (27.3%)
Nausea	5 (12.8%)	0 (0.0%)	5 (11.4%)
Vomiting	2 (5.1%)	0 (0.0%)	2 (4.6%)
Anorexia	3 (7.7%)	0 (0.0%)	3 (6.8%)
Fatigue	2 (5.1%)	0 (0.0%)	2 (4.6%)

Initial Phase 1 clinical trials

Several additional Phase 1 clinical trials of MM-398 have been conducted or are ongoing to evaluate safety and determine dosing for Phase 2 clinical trials of MM-398. Key findings from these trials include the following:

- In a multi-center, open label dose escalation trial of MM-398 as a monotherapy at 60mg/m^2, 120mg/m^2 and 180 mg/m^2 every three weeks in 11 patients with advanced solid tumors, MM-398 exhibited a sustained release profile and longer circulation time in the blood than free irinotecan, based on a comparison of pharmacokinetic data from this trial and the product label for irinotecan. In addition, systemic exposure to irinotecan released by MM-398 was negligible across the range of doses tested, indicating that most MM-398 was present as the encapsulated form in the plasma and that leakage of irinotecan was minimal during circulation.

- In a multi-center, open label dose escalation trial of MM-398 at 60mg/m^2, 80mg/m^2, 100mg/m^2 and 120 mg/m^2 every three weeks in combination with 5-FU and leucovorin in 16 advanced solid tumor patients, MM-398 exhibited a longer circulation time in the blood than free irinotecan, based on a comparison of pharmacokinetic data from this trial and the product label for irinotecan.

- In an ongoing investigator sponsored, open label, dose escalation Phase 1 clinical trial of MM-398 in patients with glioma being conducted at the University of California, San Francisco, MM-398 has been well tolerated in doses of up to 180 mg/m^2 by four patients within a subgroup defined by the presence of a specific genetic marker of irinotecan metabolism.

Companion diagnostic development

We believe that deposition of MM-398 in the tumor is important to efficacy. We are developing a liposome-based imaging agent to measure deposition in the tumor in an effort to exclude those patients whose tumors are unlikely to respond to MM-398 treatment. We are currently evaluating in preclinical testing nanotherapeutic formulations of various agents imaged by PET scan and other modalities to assess the potential for measuring significant deposition. We are also investigating functional biomarkers that are predictive of efficacy in poorly vascularized tumors, such as pancreatic cancer.

MM-121

Overview

MM-121 is a fully human monoclonal antibody that targets the ErbB3 cell surface receptor. We are currently evaluating MM-121 in multiple Phase 1 and Phase 2 clinical trials in combination with chemotherapies and other targeted therapies. We believe that MM-121 was the first ErbB3 inhibitor to enter clinical development. We are developing a companion diagnostic based on a five biomarker assay to determine whether a tumor is dependent on ErbB3 signaling and amenable to treatment with MM-121. We are testing this assay in our ongoing MM-121 clinical trial program. We have established a worldwide collaboration with Sanofi for the development and commercialization of MM-121. We are developing MM-121 for a wide range of solid tumor indications, including lung, ovarian and breast cancers.

Design and potential advantages of MM-121

We identified the importance of ErbB3 through Network Biology. Our research recognized the previously unappreciated role of ErbB3 as being critical in combinatorial ligand-induced activation of the ErbB pathway, which can lead to tumor cell growth and survival.

In designing MM-121, we:

- generated a human antibody antagonist as opposed to another type of therapeutic because the ErbB3 receptor does not have an active kinase domain and therefore ErbB3 signaling cannot be blocked by a small molecule kinase inhibitor;
- generated a human antibody that binds to a specific portion of the ErbB3 molecule so as to block the binding of ErbB3's activating ligand, known as heregulin, and inhibit growth and survival signaling;
- designed the antibody to inhibit ErbB3 induced activation by ligands other than heregulin by blocking the ability of ErbB3 to pair with other receptors and become activated by them;
- designed MM-121 to cause the ErbB3 receptor to be internalized into the tumor cell so that it is no longer available for the signaling process that can drive cancer growth and survival; and
- designed MM-121 as a specific type of antibody, called an IgG2, that minimizes immune activation that can cause off-target adverse events.

Based on the central role of ErbB3 in cancer growth and survival, we believe that MM-121 potentially is applicable to a broad range of tumors, including lung, prostate, breast, ovarian and pancreatic cancers. Our preliminary study of several hundred tumors suggests that MM-121 may be able to target ErbB3 signaling occurring in 30% or more of cancer patients with these types of tumors.

Our research suggests that ErbB3 is associated with the development of resistance to other therapies. Therefore, we believe that MM-121 may be especially effective when given in combination with chemotherapies and other targeted therapies and potentially offers the following advantages compared to existing therapies:

- the ability to synergistically or additively attack tumor growth, based on our preclinical research involving a broad range of combination therapies;
- the ability to delay the development of resistance to other agents, based on our research demonstrating that ErbB3 signaling is upregulated in response to treatment with other therapies; and
- the ability to restore sensitivity to drugs, based on analyses of MM-121 in several cell types and xenograft models that are resistant to targeted therapies or chemotherapies.

Clinical development of MM-121

We and Sanofi are conducting a broad clinical program to test MM-121 in combination with a range of other therapies across a wide spectrum of solid tumor patient populations. The goal of this program is to explore the effect and efficacy of MM-121 in combination with other targeted ErbB agents, such as erlotinib (Tarceva), and chemotherapies, such as paclitaxel (Taxol).

We plan to assess whether efficacy is improved by measuring the ability of various MM-121 combinations to enhance anti-tumor activity or to delay resistance or restore sensitivity to the other therapies.

Phase 2 clinical trial of MM-121 in combination with exemestane for hormone-sensitive breast cancer

We are currently enrolling patients in a randomized, double blind Phase 2 clinical trial to compare the efficacy of MM-121 in combination with exemestane (Aromasin) to exemestane alone. Exemestane is a widely used aromatase inhibitor for the treatment of breast cancer. Aromatase is an enzyme implicated in breast cancer. The trial protocol calls for enrollment of 130 postmenopausal women with metastatic hormone sensitive breast cancer who have tested negative for overexpression of ErbB2 (HER2) and who have previously failed treatment with an aromatase inhibitor or other anti-estrogen therapy. We are conducting this trial at multiple sites in the United States and are now expanding the trial into clinical sites in other countries. The primary efficacy endpoint of this trial is progression free survival (PFS). Secondary endpoints are overall survival (OS), objective response rate (ORR), duration of response and disease control rate (DCR).

Phase 1/2 clinical trial of MM-121 in combination with erlotinib for non-small cell lung cancer

We are currently conducting a Phase 1/2 clinical trial of MM-121 in patients with metastatic non-small cell lung cancer, or NSCLC. The Phase 1 portion of the trial is an open label, dose escalation study in which successive groups of patients will be enrolled. The purpose of the Phase 1 portion of the trial is to assess the safety of MM-121 in combination with erlotinib and determine the optimal dose and dosing schedule of this combination for the Phase 2 portion of the trial. Erlotinib is a marketed small molecule directed at EGFR (ErbB1). We plan to enroll approximately 25 to 37 patients in the Phase 1 portion of the trial.

We expect to initiate the Phase 2 portion of the trial, which involves testing three separate hypotheses in three different populations of NSCLC patients, in the second half of 2011 at multiple sites in North America, Europe and Asia. In addition, we will be evaluating the potential utility of the predictive biomarkers for MM-121. The Phase 2 portion of the trial will be an open label study in which we plan to enroll approximately 229 patients in parallel across the three different patient populations. The primary efficacy endpoint of the Phase 2 portion of the trial is progression free survival (PFS). The trial is expected to include the following three populations of NSCLC patients:

- Group A: approximately 120 patients who do not have an EGFR (ErbB1) activating mutation and have failed at least one chemotherapy-containing regimen will be randomized to receive either MM-121 in combination with erlotinib or erlotinib alone;
- Group B: approximately 66 patients who have an EGFR (ErbB1) activating mutation and have not received prior EGFR (ErbB1) targeted therapy will be randomized to receive either MM-121 in combination with erlotinib or erlotinib alone; and
- Group C: approximately 43 patients who have an EGFR (ErbB1) activating mutation and have failed prior EGFR (ErbB1) targeted therapy will receive MM-121 in combination with erlotinib.

Phase 1 clinical trial of MM-121 in combination with paclitaxel for ErbB2 (HER2) negative breast cancer and gynecological cancers

We are currently conducting an open label, dose escalation Phase 1 clinical trial of MM-121 in combination with paclitaxel, an established chemotherapy, in patients with the following cancers:

- advanced ovarian and other gynecological cancers; or
- metastatic ErbB2 (HER2) non-overexpressing breast cancer, in which the patient has tested negative for overexpression of ErbB2 (HER2).

We are conducting this trial at multiple sites in the United States. The purpose of the trial is to assess the safety of MM-121 in combination with paclitaxel and to determine the recommended dose for a subsequent Phase 2 clinical trial and to evaluate the potential utility of the predictive biomarkers for MM-121. There are two cohorts of patients in this trial who receive different loading and ongoing doses of MM-121 during the trial.

Phase 1 clinical trial

We have completed an open label, dose escalation Phase 1 clinical trial of MM-121 in 25 patients with advanced tumors that were refractory to other treatments. The purpose of this trial was to study the safety and pharmacokinetic properties, determine the maximum tolerated dose and evaluate the effect of MM-121 on tumor growth. There were six successive cohorts of three to six patients each in this trial. Each cohort received different weekly doses of MM-121 that increased after each cohort. In the last cohort, a dosing regimen known as a loading dose regimen was tested where the first dose received was higher than subsequent weekly dosing. We did not identify a maximum tolerated dose in this trial.

We are currently enrolling 20 to 30 patients in an open label, expansion cohort of this trial to further characterize safety and explore clinical biomarkers. Patients in the expansion cohort are dosed before and after biopsies. This trial is focused on enrolling patients with ErbB2 (HER2) negative breast cancer, ovarian cancer and other tumor types in which the ErbB3 pathway may play an important role. As of December 31, 2010, we had enrolled 13 patients in this expansion cohort. The following table summarizes the grade 3 and grade 4 adverse events observed in the dose escalation and expansion phases of this trial as of December 31, 2010.

Adverse event	**Patients (n = 38)**
Fatigue	4 (10.5%)
Nausea	1 (2.6%)
Vomiting	1 (2.6%)

In the dose escalation portion of this trial, five of 25 patients (20%) achieved a clinical benefit, as demonstrated by stable disease (SD), partial response (PR) or complete response (CR). In the expansion portion of this trial, four of 13 patients (29%) enrolled as of December 31, 2010 had stable disease (SD) for eight weeks or longer.

Planned clinical trials

We plan to initiate additional clinical trials of MM-121 in a range of other solid tumor indications both as a monotherapy and in combination with other treatments.

Preclinical development of MM-121

We have conducted a comprehensive program of preclinical testing of MM-121, including several *in vitro* analyses and *in vivo* xenograft studies. Key findings from this preclinical program include the following:

- Administration of MM-121 resulted in dose-dependent growth inhibition in a broad range of cancer xenograft models, including those of lung, ovarian, breast, prostate and renal cancer.

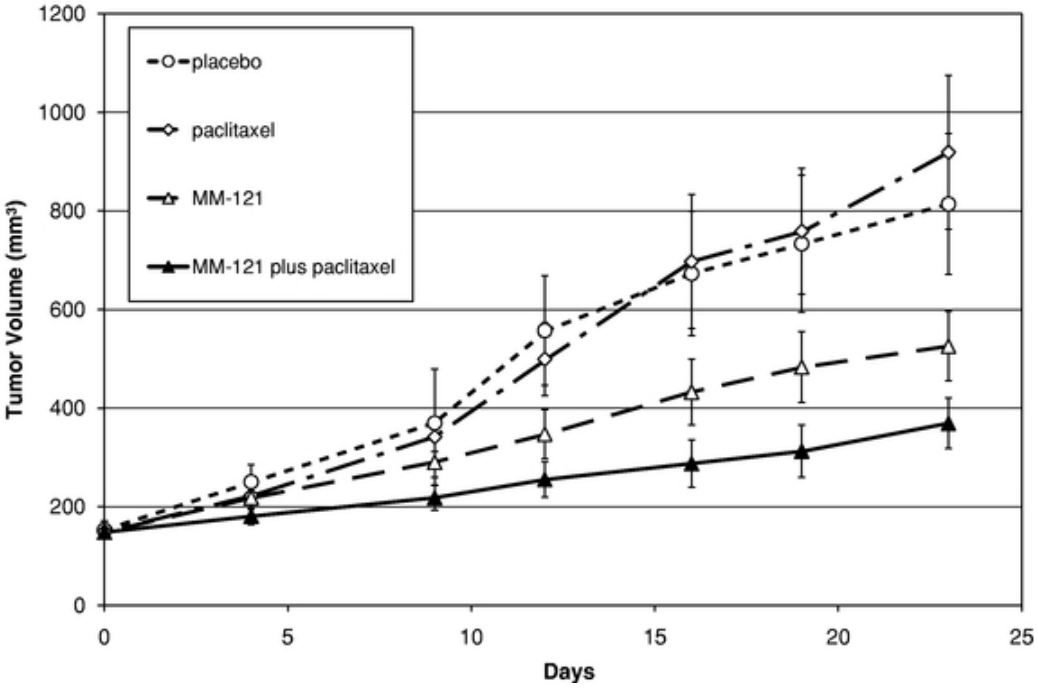
- MM-121 demonstrated synergistic or additive effects when combined with a number of other therapies, including both chemotherapies and other targeted therapies, as reflected in the graphs below.

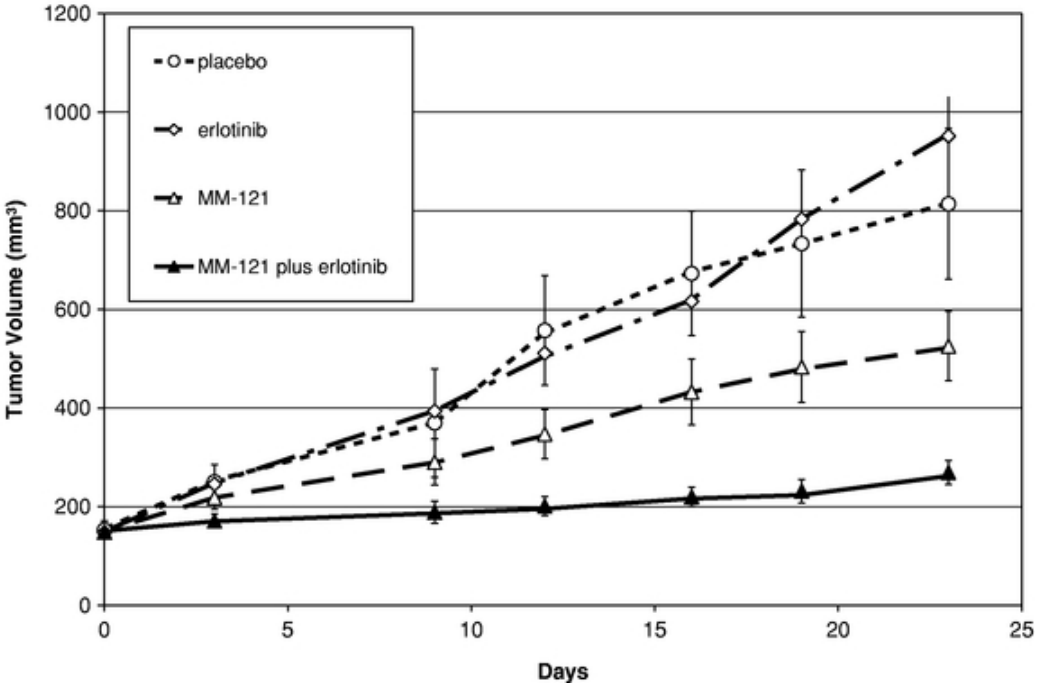
For example, the figures below show the ability of MM-121 in preclinical testing to restore sensitivity to both chemotherapies and other targeted therapies and to achieve a synergistic improvement in activity when used in combination with those therapies. The figures summarize experiments in which we implanted human tumor cells into mice and measured how the growth of tumors was affected over time in response to different treatment regimens.

In the first figure, mice were implanted with A549 human lung cancer cells, and the tumors were allowed to grow. Seven mice in each of four groups were then treated with placebo, paclitaxel, MM-121 or a combination of MM-121 and paclitaxel. The A549 lung cancer tumors are generally resistant to treatment with paclitaxel, which is confirmed by the lack of activity demonstrated by treatment with paclitaxel alone. Treatment with MM-121 inhibited growth of the tumors. Importantly, when MM-121 and paclitaxel were administered in combination, there was an additional inhibition of xenograft growth, indicating that treatment with MM-121 sensitized the xenograft to treatment with paclitaxel and resulted in a synergistic inhibition of the growth of the xenograft.

In the second figure, a similar experiment was conducted in A549 human lung cancer cells. Seven mice in each of four groups were implanted with A549 cells, and the tumors were allowed to grow. Mice were then treated with placebo, erlotinib, MM-121 or a combination of MM-121 and erlotinib. The A549 lung cancer tumors are also generally resistant to treatment with erlotinib, which is confirmed by the lack of activity demonstrated by treatment with erlotinib alone. Treatment with MM-121 inhibited growth of the tumors. Importantly, when MM-121 and erlotinib were administered in combination, there was an additional inhibition of

xenograft growth, indicating that treatment with MM-121 sensitized the xenograft to treatment with erlotinib and resulted in a synergistic inhibition of the growth of the tumors.





Companion diagnostic development

Using our Network Biology approach, we derived a predictive biomarker profile that identifies tumors that are responsive to MM-121 in animal models. This test measures the levels of five proteins involved in the ErbB pathway and predicts the activated state of ErbB3 and, therefore, the potential responsiveness of the tumor to MM-121 based on those levels. Using this approach, we have been able to successfully predict whether a tumor in a preclinical xenograft study will respond to MM-121. We now plan to investigate whether and at what levels these biomarkers can predict MM-121 response in human tumor samples. As part of our ongoing clinical development of MM-121, we are taking biopsies from patients in order to measure levels of biomarkers in the tumors treated with MM-121.

MM-111

Overview

MM-111 is a bispecific antibody designed to target cancer cells that overexpress the ErbB2 (HER2) cell surface receptor, which are also referred to as ErbB2 (HER2) positive, in order to inhibit ErbB3 cell growth signaling. Bispecific antibodies are antibodies designed to simultaneously bind to two different target cell surface proteins or receptors. In the case of MM-111, these targets are the ErbB2 (HER2) receptor and the ErbB3 receptor. We are currently evaluating MM-111 in three Phase 1 clinical trials. We are working to develop a companion diagnostic based on a multiple biomarker assay to identify patient populations likely to respond to treatment with MM-111. This diagnostic is in preclinical development. We are developing MM-111 for a wide range of solid tumors, including breast, gastric, ovarian and bladder cancers.

Design and potential advantages of MM-111

MM-111 is designed to inhibit growth and survival signaling through ErbB3 in cancer cells characterized by high levels of ErbB2 (HER2). The complex of ErbB2, ErbB3 and its ligand heregulin promotes tumor growth in ErbB2 (HER2) positive cancer cells. MM-111 consists of a targeting arm that binds to ErbB2 (HER2) and a therapeutic arm that binds to ErbB3. The ErbB3 arm is designed to disrupt the ErbB2/ErbB3/heregulin complex and therefore inhibit tumor cell growth and survival.

Based on our preclinical research, we believe that MM-111 may offer the following advantages compared to existing treatments:

- In patients with ErbB2 (HER2) positive cancers, we believe that the bispecific design of MM-111 more effectively inhibits ErbB3 than combinations of separate ErbB2 (HER2) and ErbB3 targeted antibodies. Multiple published studies indicate that the affinity of heregulin for the ErbB2/ErbB3 receptor complex on ErbB2 (HER2) positive tumor cells is very high. Our research suggests that this makes it difficult to inhibit signaling with single drugs or combinations. MM-111 is designed to utilize an ErbB2 (HER2) targeting arm to greatly increase the local concentration of the ErbB3 therapeutic arm on the surface of ErbB2 (HER2) positive tumor cells, thus enabling the molecule to disrupt the high affinity complex and inhibit signaling.

- We believe that MM-111 may be particularly effective in combination with both ErbB2 (HER2) targeted and conventional chemotherapies, as MM-111 may be able to enhance

anti-tumor activity, delay the development of resistance to other agents and restore sensitivity to drugs to which a tumor has become resistant.

- In breast cancer and additional tumor types, such as gastric and ovarian cancer, we believe that MM-111 may be effective in patients whose tumors express ErbB2 (HER2) at lower levels than those needed for currently marketed ErbB2 (HER2) targeted agents that inhibit the ErbB2 (HER2) receptor directly.

- We believe that MM-111 will have a more favorable safety profile than currently marketed ErbB2 (HER2) targeting agents because it is not designed to block ErbB2 (HER2) cell signaling, which is associated with cardiac adverse events.

Clinical development of MM-111

We have initiated a clinical program to evaluate MM-111 as a monotherapy and in combination with trastuzumab, with and without conventional chemotherapy, across traditional ErbB2 (HER2) positive solid tumors. We are evaluating MM-111 for the treatment of breast and gastric cancer, for which ErbB2 (HER2) directed agents are currently approved, in addition to ErbB2 (HER2) positive solid tumors for which there are no approved therapies, such as bladder cancer.

The goal of this program is to evaluate the added benefit of combining MM-111 with targeted ErbB2 (HER2) agents, such as trastuzumab (Herceptin) and lapatinib (Tykerb), and conventional chemotherapies, such as paclitaxel, capecitabine and cisplatin. We plan to assess whether clinical benefit is improved by evaluating the ability of MM-111 to delay resistance or restore the sensitivity of other therapeutics. We have designed this clinical program to provide us with information about MM-111 for use in treating both traditional ErbB2 (HER2) positive cancers and solid tumors in which lower levels of ErbB2 (HER2) expression is known to occur but for which ErbB2 (HER2) directed agents are not currently clinically used.

We are currently conducting three Phase 1 clinical trials of MM-111 as described below. Based on data from these Phase 1 trials, we expect to identify the recommended combinations of therapies and doses for future Phase 2 clinical development of MM-111 in ErbB2 (HER2) positive cancers.

Phase 1 trial in advanced, refractory ErbB2 (HER2) positive cancers

We are currently conducting an open label, dose escalation Phase 1 clinical trial of MM-111 in patients with ErbB2 (HER2) positive solid tumors. The trial protocol calls for enrollment of patients with any solid tumor type. We are conducting this trial at approximately three sites in the United States. The purpose of this trial is to assess the safety and clinical activity of MM-111 and evaluate other exploratory endpoints.

We have designed the trial to determine the maximum tolerated dose or the maximum feasible dose of MM-111, and any dose limiting adverse events. We also designed the trial to assess objective response rate (ORR) and progression free survival (PFS). As of May 31, 2011, we had recruited and dosed 18 patients in this trial.

Phase 1 clinical trial of MM-111 in combination with trastuzumab for advanced refractory ErbB2 (HER2) positive breast cancer

We are currently conducting an open label, dose escalation Phase 1 clinical trial of MM-111 in patients with ErbB2 (HER2) positive breast cancer. The purpose of the trial is to assess the safety of MM-111 in combination with trastuzumab and determine the optimal dose and dosing schedule of this combination. Trastuzumab is an approved therapy directed at ErbB2 (HER2) positive cancer cells. We are conducting this trial at approximately four sites in the United States. We plan to enroll up to 24 patients in the trial. As of May 31, 2011, we had enrolled and dosed 15 patients.

Phase 1 clinical trial of MM-111 in combination with multiple treatments for ErbB2 (HER2) positive solid tumors

We are conducting an open label, dose escalation Phase 1 clinical trial of MM-111 in patients with advanced ErbB2 (HER2) positive solid tumors. The trial protocol calls for enrollment of approximately 18 to 36 patients. We are conducting this trial at approximately 12 sites in the United States. The purpose of the trial is to determine the maximum tolerated dose and any dose limiting adverse events of MM-111 in combination with multiple treatment regimens. The trial includes three arms of combination therapies with MM-111:

- cisplatin, capecitibane and trastuzumab in the first arm;
- lapatinib and trastuzumab in the second arm; and
- paclitaxel and trastuzumab in the third arm.

This trial also will assess the pharmacokinetics of MM-111 with each combination, safety and tolerability of each combination and the antitumor activity of each combination as indicated by objective response rate (ORR), duration of response and progression free survival (PFS). Exploratory endpoints include an analysis of serum and tissue markers and their correlation with antitumor activity.

Preclinical development of MM-111

We have conducted a comprehensive program of preclinical testing of MM-111, including several *in vitro* analyses and *in vivo* xenograft studies. Key findings from this preclinical program include the following:

- MM-111 was active in several ErbB2 (HER2) positive xenograft models, including breast, lung and gastric cancer. Tumor size was reduced in all tumor types.
- In cell-based and animal model tests, the anti-proliferative activity of MM-111 resulted in a tumor shrinkage that positively correlated with ErbB2 (HER2) expression levels. MM-111 had a synergistic effect on the inhibition of tumor growth in a breast cancer xenograft model when combined with trastuzumab or lapatinib. We believe these data suggest a potential benefit of adding MM-111 to existing agents that target ErbB2 (HER2) and have marginal activity as monotherapies in ErbB2 (HER2) positive disease.
- In cell-based and animal model tests, the combination of MM-111 with anti-estrogen therapy showed superior activity to either drug as a monotherapy, indicating the potential for a combination of MM-111 with endocrine therapies to overcome acquired resistance to

endocrine therapies in estrogen receptor, or ER, positive, ErbB2 (HER2) positive breast cancer patients. For example, in an estrogen-stimulated, estrogen positive and ErbB2 (HER2) positive breast cancer cell assay, MM-111 as a monotherapy showed growth inhibitory effects similar to the anti-estrogen drugs tamoxifen and fulvestrant. In the presence of heregulin, MM-111 maintained its growth inhibitory activity. In contrast, the inhibitory effect of tamoxifen and fulvestrant was diminished in the presence of heregulin. This suggests that activation of ErbB3 may confer tumor cell resistance to anti-estrogen therapies.

Companion diagnostic development

We are working to develop a diagnostic tool that will allow rapid identification of patients likely to respond to treatment with MM-111 based on their expression levels of ErbB2 (HER2), ErbB3, heregulin and other factors that we anticipate identifying from ongoing clinical trials. Our goal is to develop a diagnostic tool that offers significant improvement over the qualitative tests that are currently used to identify potentially responsive patients based on ErbB2 (HER2) overexpression alone.

The current focus of this program is the development of quantitative assays to assess ErbB2 (HER2), ErbB3 and heregulin levels in archived and pretreatment patient biopsies from our clinical trials to generate data to support our biomarker hypotheses. We are also evaluating other potential biomarkers through collaborative work with a third party.

MM-302

Overview

MM-302 is a nanotherapeutic encapsulation of doxorubicin with attached antibodies that target ErbB2 (HER2). We are screening patients for Phase 1 clinical testing of MM-302 and are preparing to dose the first patient. We are designing a companion diagnostic for MM-302 to predict which patients have tumors that will exhibit high uptake of MM-302. We are initially pursuing development of MM-302 as a therapy for metastatic breast cancer that is refractory to other therapies. We also plan to pursue the use of MM-302 as an earlier line of therapy in the adjuvant setting, which means use in conjunction with radiotherapy or surgery, and the neoadjuvant setting. In addition, we plan to pursue the use of MM-302 as a therapy for other ErbB2 (HER2) positive tumors.

Doxorubicin is a marketed chemotherapy that is a member of the anthracycline class of chemotherapies. The addition of anthracyclines to the treatment of both solid and liquid tumors has historically improved outcomes for patients. Specifically, anthracyclines have served as the backbone of breast cancer therapy for decades. Free doxorubicin is currently approved and used in adjuvant and neoadjuvant breast cancer alone and in combination with other chemotherapies and targeted agents. Consistent clinical benefit has been observed with anthracycline-based regimens in breast cancer. However, significant adverse events, including acute and chronic heart dysfunction, have limited their use.

Liposomal doxorubicin, marketed as Doxil, is currently approved and used in ovarian cancer and multiple myeloma. Although liposomal doxorubicin exhibits a better cardiac adverse event profile than free doxorubicin, its use also has been limited by hand-foot syndrome, which is an adverse event that produces redness and peeling on the hands and feet. In addition, the incremental efficacy benefits of liposomal doxorubicin compared with free doxorubicin is not

clear, with direct comparisons between the two therapies in some tumor subtypes demonstrating equivocal results. In a pivotal clinical trial of women with breast cancer, liposomal doxorubicin was no more effective than free doxorubicin.

Design and potential advantages of MM-302

We designed MM-302 to bind to cancer cells that overexpress ErbB2 (HER2) and thereby release doxorubicin at the site of the tumor. Our goal is for MM-302 to retain the safety profile of liposomal doxorubicin, in particular with respect to cardiac safety, but to have better efficacy in ErbB2 (HER2) positive tumors.

We believe that MM-302 may offer the following advantages in comparison with free doxorubicin and liposomal doxorubicin:

- MM-302 is designed to utilize nanotherapeutic encapsulation to protect the heart from cardiac adverse events associated with free doxorubicin.

- The specific size and stability characteristics of MM-302 are designed to enable the preferential deposition of the drug within tumors relative to normal tissue. Specifically, we believe that, as a nanotherapeutic, MM-302 is able to utilize the EPR effect to selectively enter, and subsequently be trapped in, tumors with leaky vasculature.

- MM-302 is designed with attached antibodies so as to use the ErbB2 (HER2) receptor as a binding mechanism to induce the internalization of the nanotherapeutic encapsulated drug particle, and thereby provide drug delivery directly into the cell and increase the potential efficacy of doxorubicin.

- MM-302 is designed with an ErbB2 (HER2) antibody that binds to but does not block the signaling activity of ErbB2 (HER2). We believe that this will minimize the severity and frequency of adverse events associated with suppressing ErbB2 (HER2) and allow for clinical benefit for patients with lower levels of ErbB2 (HER2) than is provided by current ErbB2 (HER2) directed treatments.

- MM-302 may provide anti-tumor benefit for patients who have failed other ErbB2 (HER2) targeted therapies, but who have not been exposed to anthracyclines.

- Based on our preclinical research, we believe that MM-302 may synergize effectively in combination with a number of approved therapies, such as trastuzumab and possibly lapatinib, chemotherapy, hormonal therapy and our own drugs MM-111 and MM-121. The current concerns about the severity and frequency of adverse events associated with doxorubicin and liposomal doxorubicin prevent them from being used in many combination regimens.

Clinical development of MM-302

We have two key strategies for the clinical development of MM-302:

- *Replace doxorubicin in ErbB2-positive settings.* Doxorubicin remains a widely used chemotherapy drug notwithstanding concerns of adverse events, particularly cardiac adverse events. One of our clinical development strategies is to replace the use of doxorubicin with MM-302 by demonstrating that MM-302 has favorable efficacy and safety compared to doxorubicin.

- *Expand into indications where anthracyclines are no longer used.* We believe that there is the potential to expand MM-302 into indications, such as late-line therapy, where anthracyclines are viewed as effective but are not used due to safety concerns. If we are able to demonstrate that MM-302 has a favorable safety profile compared to doxorubicin, we believe that we can expand into these settings.

Phase 1 clinical trial in breast cancer

We are recruiting patients into an open label, dose escalation Phase 1 clinical trial of MM-302. The trial protocol calls for enrollment of between 18 and 36 patients with advanced ErbB2 (HER2) positive breast cancer. We are conducting this trial at approximately four sites in the United States. The purpose of this trial is to assess the safety of MM-302 and identify the maximum tolerated dose. We are preparing to dose the first patient in this trial. We are planning an expansion cohort to follow the dose escalation portion of this trial.

Preclinical development of MM-302

We have conducted a comprehensive program of preclinical testing of MM-302, including several *in vitro* analyses and *in vivo* xenograft studies. Key findings from this preclinical program include the following:

- In studies of human heart muscle cells known as cardiomyocytes, MM-302 did not measurably impact ErbB2 (HER2) signaling, which we believe suggests a potential for low cardiac adverse event occurrence in the clinic.

- In multiple cell culture experiments, MM-302 bound with and was internalized into ErbB2-expressing cells more effectively than liposomal doxorubicin.

- MM-302 demonstrated measurable activity in cultured cells expressing a lower level of ErbB2 (HER2) receptors than are indicated for treatment with currently marketed therapies.

- In multiple xenograft experiments, MM-302 was significantly more potent than free doxorubicin in inhibiting tumor growth.

With respect to the safety of MM-302, we conducted two single dose toxicity studies of MM-302 in rats and monkeys. We dosed the animals at four dose levels for one hour by intravenous infusion followed by a 28-day observation period. In each dose group, at least 87% of all administered doxorubicin remained encapsulated while in the plasma, which we believe limits distribution to the heart and other non-target tissue. At 28 days following the dosing period, we observed no microscopic signs of cardiac damage in either rats or monkeys.

Companion diagnostic development

We are conducting preclinical research on a companion diagnostic for MM-302 that will help to determine which patients will derive benefits from the drug alone or in combination with other therapies, while experiencing a satisfactory safety profile. This research is focused on:

- Developing a liposome-based imaging agent to measure deposition in the tumor in an effort to eliminate those patients whose tumors are unlikely to respond to MM-302 treatment. We are currently evaluating in preclinical testing nanotherapeutic formulations of various agents imaged by PET scan and other modalities to assess the potential for measuring significant deposition.

- Assessing the association of ErbB2 (HER2) levels with how much MM-302 can bind and enter cells. As part of these efforts, we may incorporate inclusion and exclusion criteria into our Phase 1 clinical trials of MM-302 to enrich our study population with patients who we believe are likely to benefit from MM-302, including those with high ErbB2 (HER2) expression.

MM-151

Overview

MM-151 is an oligoclonal therapeutic consisting of a mixture of three fully human monoclonal antibodies designed to bind to non-overlapping regions, or epitopes, of the EGFR (ErbB1) receptor. EGFR (ErbB1) has long been recognized as an important drug target in several malignancies, including lung, breast, colon, head and neck and pancreatic cancers. We anticipate submitting an IND to the FDA for MM-151 in the third quarter of 2011. We are focusing our diagnostic efforts for MM-151 on the identification of key biomarkers that will indicate which patient populations are likely to benefit from MM-151 treatment. We plan to develop MM-151 for a range of solid tumor indications, including colorectal, head and neck, lung, breast and pancreatic cancers.

Design and potential advantages

We believe that MM-151 may offer the following advantages over other EGFR (ErbB1) inhibitors:

- MM-151 is designed to block the signal amplification that our research suggests occurs in the EGFR (ErbB1) pathway. We believe that binding to multiple epitopes of EGFR (ErbB1) may result in superior signal inhibition compared to currently marketed EGFR (ErbB1) therapies, which only bind to one epitope.

- MM-151 is designed to inhibit the signaling that results from the binding of a full range of EGFR (ErbB1) ligands. In contrast, currently marketed therapies block the signaling of only a subset of these ligands. As a result, we believe that a broader patient population may derive clinical benefit from MM-151 than from currently marketed therapies.

- Tumors treated with marketed monoclonal antibodies directed at EGFR (ErbB1), such as cetuximab (Erbitux) and panitumumab (Vectibix), often develop resistance to these therapies. We hypothesize that this resistance results from the production by the tumor of a different type of ligand that binds to EGFR (ErbB1). Because MM-151 is designed to block a full range of EGFR (ErbB1) ligands, we believe that MM-151 may be able to delay or prevent the development of resistance more effectively than these existing therapies.

- In preclinical models, MM-151 inhibited tumor cell growth of mutated lung cancer cell lines with acquired resistance to erlotinib. As a result, we believe that MM-151 may provide a longer duration of response than small molecules, such as erlotinib, that target mutated EGFR (ErbB1).

Clinical development of MM-151

We have two key strategies related to the clinical development of MM-151:

- *Replace EGFR (ErbB1) therapies.* The FDA approved the EGFR (ErbB1) therapy erlotinib in lung and pancreatic cancer and cetuximab in colon and head and neck cancer. In clinical practice, erlotinib is used as a monotherapy or combination therapy in multiple cancer indications, including NSCLC, colorectal cancer, breast cancer and head and neck cancer. One of our clinical development strategies is to replace the use of erlotinib with MM-151 by demonstrating that MM-151 has better efficacy and comparable safety.

- *Expand EGFR (ErbB1) market using Network Biology.* Based on Network Biology insights, we believe that current EGFR (ErbB1) therapies are not being used in indications in which patients would benefit from them. Our second clinical development strategy is to expand the use of MM-151 into indications in which targeted EGFR (ErbB1) therapies are not currently approved, but which our preclinical research indicates should contain patients who will respond to these therapies. Potential indications include lung cancer, for which there is no currently approved targeted antibody therapy, and triple negative breast cancer, in which the patient has tested negative for overexpression of ErbB2 (HER2), ER and progesterone receptor, for which there is no currently approved EGFR (ErbB1) targeted therapy.

Clinical development plan

Subject to our filing an IND and it becoming effective, we plan to initiate an open label, dose escalation Phase 1 clinical trial of MM-151 in patients with solid tumors, with a focus on colorectal cancer, NSCLC and triple negative breast cancer. The purpose of this trial will be to assess the initial safety and tolerability of escalating doses of MM-151 in a small set of patients, including a determination of the maximum tolerated dose and any dose limiting adverse events. We also will assess pharmacokinetics, immunogenicity and the response to treatment after the administration of MM-151 based on objective response rate (ORR).

We also plan to conduct expansion studies as part of this Phase 1 clinical trial to determine the response of proteins, such as the known ligands of EGFR (ErbB1) that we predict will be affected by MM-151.

Preclinical development of MM-151

We have conducted a comprehensive program of preclinical testing of MM-151, including several *in vitro* analyses and *in vivo* xenograft studies. Key findings of this preclinical program include the following:

- In *in vitro* experiments, MM-151 exhibited near complete inhibition of EGFR (ErbB1) induced signaling in a dose-dependent manner. Subsequent *in vitro* studies confirmed that each of the three antibodies comprising MM-151 bound to EGFR (ErbB1) with differential avidity and affinity.

- In *in vitro* experiments, the inhibitory effects of MM-151 on signaling and proliferation were more profound than those of cetuximab, as evidenced by the virtually complete inhibition of signaling by MM-151 compared to the partial inhibition of signaling with cetuximab.

- MM-151 reduced tumor cell growth in multiple xenograft models, including lung, triple negative breast and prostate cancers. Furthermore, MM-151 exhibited better activity than

cetuximab at reducing cell growth in triple negative breast and lung cancer models with acquired resistance to erlotinib.

We conducted toxicokinetic studies to support the use of MM-151 in clinical trials, including a four week repeat dosing study of MM-151 in rats and monkeys to assess safety parameters. The animals were dosed for one hour by intravenous infusion once a week for four weeks followed by a 28-day observation period. Adverse events associated with intravenous MM-151 administration were similar to other monoclonal EGFR (ErbB1) inhibitors, including primarily dermatologic and gastrointestinal events, which have largely been manageable in clinical practice.

Companion diagnostic development

We are focusing our diagnostic efforts for MM-151 on the identification of key biomarkers that will indicate which patient populations are likely to benefit from MM-151 treatment. Our goal is to be able to identify patient populations who will respond to MM-151 and who may be unresponsive to other EGFR (ErbB1) inhibitors. This program is in preclinical development.

Preclinical product candidates

We are developing our preclinical product candidates for a range of solid tumor indications. Our most advanced preclinical candidates are MM-141, MM-310 and MM-131.

- MM-141 is a multispecific antibody. We plan to file an IND for MM-141 in 2012.
- MM-310 is a targeted nanotherapeutic. We plan to file an IND for MM-310 in late 2012 or early 2013.
- MM-131 is a multispecific antibody. We are pursuing further preclinical development of MM-131.

MM-141 and MM-131 are the first candidates in our pipeline to target multiple growth factors that are co-utilized for growth by a cancer cell. We expect that this approach may increase tumor response and limit the development of resistance that is often observed with growth factor and kinase inhibitors.

Therapeutic design capabilities

We apply the insights about cell signaling dynamics that we gain from Network Biology across a range of therapeutic technologies to design drug candidates that we believe can be efficiently delivered to the selected molecular target. We believe that the best therapies for the oncology indications that we are pursuing are targeted therapies that, in contrast with conventional chemotherapies, are highly selective for the molecular mechanisms that we are seeking to affect and, as a result, offer the potential for significant efficacy and safety benefits.

Human monoclonal antibodies

Human monoclonal antibodies are a key component of many of our targeted therapies based on their range of favorable attributes, including their significant target specificity and avidity relative to small molecules and their well understood pharmacokinetic properties. We have designed antibodies for use as stand-alone therapeutics and have incorporated antibodies into

other therapeutics, such as targeted nanotherapeutics, as targeting or docking agents. We work with several antibody formats, including the following:

- Fully human recombinant monoclonal antibodies and fragments of fully human recombinant monoclonal antibodies that include the antibody binding domain. Monoclonal antibodies and antibody fragments are proteins that bind specifically to one defined site on a cell surface protein or receptor.

- Bispecific antibody formats, which are comprised of two or more antibodies or antibody fragments linked to a common scaffold molecule to produce a single molecule that specifically binds to two epitopes on two target cell surface proteins or receptors.

- Oligoclonal antibody mixtures, which are comprised of defined ratios of two or more recombinant human monoclonal antibodies that target two or more distinct epitopes on a single cell surface protein or receptor.

Nanotherapeutics

Our nanotherapeutics are lipidic particles, carefully constructed on a nanoscale, to encapsulate active drug payloads. Nanoscale objects typically, though not exclusively, have dimensions on the order of 100 nanometers or smaller. We believe that nanotherapeutics offer the following potentially favorable attributes:

- The uniform sizing of our nanotherapeutics is intended to enable targeting and preferential deposition within tumors by taking advantage of the EPR effect.

- We formulate our nanotherapeutics to minimize the leakage of active drug payload out of the particle before the nanotherapeutic has reached the tumor, with the goal of limiting systemic exposure, and the associated occurrence of adverse events, and maximizing the amount of active drug that reaches the target.

- Encapsulation is designed to protect the active drug payload as it passes through the circulation and organs of the body, such as the liver, preventing premature clearance or metabolism of the active drug, and thereby extend the pharmacokinetic profile and enable more convenient dosing regimens.

- We can efficiently create targeted nanotherapeutics using our technical expertise and know-how that enable insertion of targeting agents, such as antibodies, into our nanotherapeutics.

- We can customize our nanotherapeutics for use with a variety of drug payloads, including chemotherapies, cytotoxics and nucleic acids, such as siRNA and genes.

Manufacturing

We manufacture drug substance for use in our clinical trials and research and development efforts for all of our therapeutic product candidates using current good manufacturing practices, or cGMP, at our 4,000 square foot multi-product facility located at our corporate headquarters in Cambridge, Massachusetts. We have the capabilities to manufacture monoclonal antibodies, bispecific antibodies, nanotherapeutics and antibody nanotherapeutics.

Our manufacturing facility:

- is comprised of four independent clean rooms;
- includes three 1,000 liter single use bioreactors; and
- has capacity to produce approximately 50 kilograms of antibodies per year.

We employ approximately 56 employees in manufacturing activities.

We believe that our strategic investment in manufacturing capabilities allows us to advance product candidates at a more rapid pace and with more flexibility than a contract manufacturer, produce drug substance in a cost-effective manner while retaining control over the process and prioritize the timing of internal programs.

Our manufacturing capabilities encompass the full manufacturing process through quality control and quality assurance and are integrated with our project teams from discovery through development. This structure enables us to efficiently transfer research stage lead molecules into manufacturing. We have designed our manufacturing facility and processes to provide maximum flexibility and rapid change over for the manufacture of different product candidates. We outsource fill-finish, packaging, labeling and shipping.

Recently, a third party contractor that we have used to fill and package both MM-121 and MM-111 experienced FDA inspection issues with its quality control processes that resulted in a formal warning letter from the FDA. Following a review by Sanofi and us, some MM-121 was withdrawn from clinical trial sites and replaced with MM-121 that was filled by a different contractor. This restocking is complete and only resulted in a few patients missing one or two doses of MM-121.

We manufacture our antibody and nanotherapeutic product candidates using readily available raw materials and well established manufacturing procedures. We produce antibodies in bioreactors using Chinese hamster ovary cells that have been genetically engineered to secrete our antibody. We then purify the antibodies using industry standard methods, which include affinity chromatography and ultrafiltration operations. We produce nanotherapeutics using high pressure filter extrusion of a mixture of cholesterol and lipids. We then load the nanoliposomes with active pharmaceutical ingredient using a proprietary process.

We have optimized the Phase 2 production process of MM-398 and produced commercial grade material at our manufacturing facility. We are currently conducting comparability characterization between PharmaEngine's Phase 2 material and our commercial grade material. We intend to file a chemistry manufacturing and controls amendment, or CMC amendment, with the FDA in the third quarter of 2011. Although sufficient MM-398 inventory exists at PharmaEngine to initiate our planned Phase 3 clinical trial of MM-398 in metastatic pancreatic

cancer, we intend to use product that we manufacture for Phase 3 clinical development upon acceptance by the FDA of our CMC amendment.

We believe that we can scale our manufacturing processes to support our clinical development programs and the potential commercialization of our product candidates. If any of our product candidates are approved for marketing by the FDA, we intend to oversee the manufacturing of these products, other than MM-121, which we will transfer to Sanofi for Phase 3 production under the terms of our collaboration agreement.

For our antibody product candidates, we intend to continue to manufacture drug substance for preclinical testing and Phase 1 and Phase 2 clinical development at our current facility. Our long term plan is to establish our own facilities for manufacturing antibody drug substance for Phase 3 clinical development and commercial sale. Pending our establishment of these facilities, we expect to transfer Phase 3 and commercial antibody manufacturing to a contract manufacturing organization. For our nanotherapeutic product candidates, we intend to continue to manufacture drug substance for preclinical testing and all stages of clinical development and initially manufacture drug substance for commercial sale at our current facility.

We are developing and testing diagnostic assays for predictive biomarkers in an internal laboratory under Good Clinical Laboratory Practices. Upon completion of the development of the diagnostic tests, we plan to evaluate external as well as internal options for manufacturing and commercialization of the tests.

Organizational measures

Our objective is to discover, develop and commercialize innovative medicines that transform patient care. We believe that building an organization that fosters and sustains innovation is important to providing long term value for our investors. Therefore, we plan to continue to invest and develop our innovation capabilities as we research and develop novel medicines.

We also believe that part of our task as effective stewards of our investors' capital is to provide transparent information to our investors on the components of our work that ultimately determine our ability to meet our objectives. We believe that our financial performance in creating innovative medicines is a function in part of four performance indicators. Accordingly, we intend to report on our progress against the following key metrics:

- *Organizational health.* We believe that our employees are our key asset. In order for our employees to be productive, we need to support their efforts with an effective work environment, competitive compensation that rewards their creation of stockholder value and leading opportunities for personal and professional development.

- *Collaboration networks.* We believe that networks are not only the key drivers of biology, but essential to innovation and research and development productivity. We believe innovation requires the fertilization of different fields and perspectives. We strive to create information networks internally and collaborations externally.

- *Research and development productivity.* We believe that Network Biology has the potential to create transformative medicines and alter the productivity of research and development. Our goals are to achieve a superior success rate in our clinical trials and establish overall resource productivity that is best in class.

- *The health and economic outcomes of our products.* Our goal is to create integrated medicines that not only provide the best medical outcome, but also improve the overall efficiency of care. We intend to assess the impact of our products relative to standard of care both in terms of health and economic benefits.

Sales and marketing

As our lead product candidates are still in clinical development, we have not yet established a sales, marketing or product distribution infrastructure. We generally expect to retain commercial rights in the United States and Europe for our oncology product candidates, other than MM-121, for which we receive marketing approvals. We believe that it is possible to access these markets through a focused, specialized sales force.

Subject to receiving marketing approvals, we expect to commence commercialization activities by building a focused sales and marketing organization for MM-398. This could form the basis of our sales and marketing organization that we will use to sell our other products, subject to receiving marketing approval. We believe that such an organization will be able to address the community of oncologists who are the key specialists in treating solid tumors, including the lung, breast, ovarian, pancreatic, colorectal and head and neck cancers for which our product candidates are being developed. Outside the United States and Europe, we expect to enter into distribution and other marketing arrangements with third parties for any of our product candidates that obtain marketing approval.

We also plan to build a marketing and sales management organization to create and implement marketing strategies for any products that we market through our own sales organization and to oversee and support our sales force. The responsibilities of the marketing organization would include developing educational initiatives with respect to approved products and establishing relationships with thought leaders in relevant fields of medicine.

We plan to tightly integrate the marketing of our therapeutics and companion diagnostics. As we expect to pair various types of diagnostics with our therapeutics, it is likely that the sales and marketing tactics and business model employed for our various diagnostics may differ from one another.

Competition

The biotechnology and pharmaceutical industries are characterized by rapidly advancing technologies, intense competition and a strong emphasis on proprietary products. While we believe that our Network Biology technologies, integrated research, clinical and manufacturing capabilities, development experience and scientific knowledge provide us with competitive advantages, we face potential competition from many different sources, including major pharmaceutical, specialty pharmaceutical and biotechnology companies, academic institutions and governmental agencies and public and private research institutions. Any product candidates that we successfully develop and commercialize will compete with existing therapies and new therapies that may become available in the future.

Many of our competitors may have significantly greater financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical trials, obtaining regulatory approvals and marketing approved products than we do. Mergers and acquisitions in the pharmaceutical, biotechnology and diagnostic industries may result in even

more resources being concentrated among a smaller number of our competitors. These competitors also compete with us in recruiting and retaining qualified scientific and management personnel and establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs. Smaller or early stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies.

The key competitive factors affecting the success of all of our product candidates, if approved, are likely to be their efficacy, safety, convenience, price, the effectiveness of companion diagnostics in guiding the use of related therapeutics, the level of generic competition and the availability of reimbursement from government and other third party payors.

Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize products that are safer, more effective, have fewer or less severe side effects, are more convenient or are less expensive than any products that we may develop. Our competitors also may obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for ours. In addition, our ability to compete may be affected because in many cases insurers or other third party payors seek to encourage the use of generic products. There are many generic products currently on the market for the indications that we are pursuing, and additional products are expected to become available on a generic basis over the coming years. If our therapeutic product candidates are approved, we expect that they will be priced at a significant premium over competitive generic products.

The most common methods of treating patients with cancer are surgery, radiation and drug therapy, including chemotherapy and targeted drug therapy. As discussed under "—Cancer—Solid tumor market," there are a variety of available drug therapies marketed for solid tumors. In many cases, these drugs are administered in combination to enhance efficacy. Some of these drugs are branded and subject to patent protection, and others are available on a generic basis, including the active ingredients in MM-398 and MM-302. Many of these approved drugs are well established therapies and are widely accepted by physicians, patients and third party payors. In general, although there has been considerable progress over the past few decades in the treatment of solid tumors and the currently marketed therapies provide benefits to many patients, these therapies all are limited to some extent in their efficacy and frequency of adverse events, and none of them are successful in treating all patients. As a result, the level of morbidity and mortality from solid tumor cancers remains high.

In addition to the marketed therapies highlighted under "—Cancer—Solid tumor market," there are also a number of products in late stage clinical development to treat solid tumors. These products in development may provide efficacy, safety, convenience and other benefits that are not provided by currently marketed therapies. As a result, they may provide significant competition for any of our product candidates for which we obtain market approval.

Collaboration and license agreements

We are party to a number of collaboration agreements for the development and commercialization of our product candidates and license agreements under which we license patents, patent applications and other intellectual property. We consider the following collaboration and license agreements to be material to our business.

Sanofi

In September 2009, after MM-121 entered Phase 1 clinical development, we entered into a license and collaboration agreement with Sanofi for the development and commercialization of MM-121. Under the agreement, we granted Sanofi an exclusive, worldwide, royalty-bearing right and license, with the right to grant sublicenses, under our patent rights and know-how to develop and commercialize the monoclonal antibody MM-121 and an MM-121 companion diagnostic. We retained the right, but not the obligation, to participate in clinical development of MM-121 through Phase 2 proof of concept for each indication and final decision making authority over the conduct of the trials that we conduct, subject to our having the necessary capabilities and resources to conduct those trials and subject to the trials we conduct having been approved by Sanofi as part of the global development plan for MM-121. Sanofi is responsible for using commercially reasonable efforts thereafter to develop, obtain regulatory approvals for and, following regulatory approval, commercialize MM-121 and a companion diagnostic in each of the United States, Europe and Japan. We also retained an option to co-promote MM-121 in the United States.

Under the agreement, Sanofi paid us a non-refundable upfront license fee of $60 million. Sanofi is also responsible for all development and manufacturing costs under the collaboration. In addition, we could receive under the agreement up to an aggregate of $410 million from Sanofi upon the achievement of specified development and regulatory milestones and an additional $60 million based on the achievement of specified sales milestones. We have received $10 million to date based on our achievement of a clinical milestone. Under the agreement, we are entitled to tiered, escalating royalties beginning in the low double digits based on net sales of MM-121 in the United States and beginning in the high single digits based on net sales of MM-121 outside the Unites States. In general, Sanofi's obligation to pay us royalties continues on a product-by-product and country-by-country basis until the latest of the expiration of the patent rights covering the product in such country, the expiration of all data and regulatory exclusivity applicable to the product in such country or ten years after the first commercial sale of the product in such country. If we co-promote MM-121 in the United States, we will be responsible for paying our sales force costs and a specified percentage of direct medical affairs, marketing and promotion costs for MM-121 in the United States and will be eligible to receive tiered, escalating royalties beginning in the high teens based on net sales of MM-121 in the United States. We are also entitled to an increase in the royalty rate on a product-by-product and country-by-country basis if a diagnostic product is actually used in the treatment of solid tumor indications with a particular therapeutic product.

Under the agreement, we are obligated to pay all licensing costs for specified third party patent rights that we or Sanofi may in the future license for the development and commercialization of MM-121. The third party patent rights for which we are required to pay all licensing costs include the patent rights that are the subject of two European Patent Office opposition proceedings. See "—Legal proceedings" for more information. We share the licensing costs for other third party patent rights that we or Sanofi have licensed or may in the future license for the development and commercialization of MM-121 through specified deductions that Sanofi is permitted to take against the royalties Sanofi pays to us. The third party patent rights for which we share the costs with Sanofi include rights that we have licensed from Dyax Corp., or Dyax, the U.S. Public Health Service and Selexis SA, as described in more detail below.

A joint steering committee comprised of an equal number of representatives from each of Sanofi and us is responsible for reviewing and approving the global development plan for MM-121, including all budgets relating to development activities we conduct, and overseeing the parties' development and commercialization activities with respect to MM-121. The joint steering committee also oversees a joint development committee responsible for overseeing the progress of the development program. In general, Sanofi has final decision making authority over matters on which the joint steering committee deadlocks, following escalation to designated executive officer representatives of the parties, with the exception of our retained decision making authority over the conduct of clinical trials that that we conduct in accordance with the global development plan. If necessary and at a time to be mutually agreed by the parties, we and Sanofi have agreed to form a commercialization committee, also to be overseen by the joint steering committee, that will be responsible for overseeing co-promotion activities in the United States and serving as a forum for communication between the parties regarding worldwide commercialization matters for MM-121.

Sanofi has agreed that, subject to limited exceptions, until the second anniversary of the closing of this offering, neither Sanofi nor any of its affiliates will (1) effect or seek, initiate, offer or propose to effect, or cause or participate in any way, advise or assist any other person to effect or seek, initiate, offer or propose to effect or cause or participate in, any acquisition of any of our securities or assets, any tender or exchange offer, merger, consolidation or other business combination involving us, any recapitalization, restructuring, liquidation, dissolution or other extraordinary transaction with respect to us or any solicitation of proxies or consents to vote any of our voting securities; (2) form, join or in any way participate in a group with respect to any of our securities; (3) otherwise act, alone or in concert with others, to seek to control or influence our management, board of directors or policies, except as contemplated by our collaboration agreement; (4) take any action which would reasonably be expected to force us to make a public announcement regarding the foregoing; or (5) enter into any agreements, discussions or arrangements with any third party with respect to any of the foregoing.

If not terminated earlier, the agreement will expire upon expiration of all royalty and other payment obligations of Sanofi under the agreement. Either party may terminate the agreement in the event of an uncured material breach by the other party. Sanofi also may terminate the agreement for its convenience upon 180 days' prior written notice. In addition, we may terminate the agreement if Sanofi challenges or supports any challenge of our licensed patent rights.

PharmaEngine

In May 2011, we entered into an assignment, sublicense and collaboration agreement with PharmaEngine. Under the agreement, PharmaEngine assigned to us its rights and obligations under a 2005 agreement with Hermes BioSciences, Inc., or Hermes, to develop and commercialize MM-398 in Europe and certain countries in Asia. Through our acquisition of Hermes in 2009, we hold the rights to MM-398 in North America and the rest of the world. PharmaEngine also granted to us an exclusive right and license, with the right to sublicense, under PharmaEngine technology and rights to develop and commercialize MM-398 worldwide outside of Taiwan. We granted to PharmaEngine a paid-up, royalty free, exclusive right and license under our technology and rights to develop and commercialize MM-398 in Taiwan.

Under the agreement, we paid PharmaEngine a $10 million upfront license fee. In addition, PharmaEngine is eligible to receive up to an aggregate of $210 million from us upon the

achievement of specified development, regulatory and annual net sales milestones. Under the agreement, PharmaEngine is entitled to tiered royalties based on net sales of MM-398 in Europe and certain countries in Asia. The royalty rates under the agreement range from high single digits up to the low teens as a percentage of our net sales of MM-398 in these territories. Our obligation to pay royalties to PharmaEngine continues on a country-by-country basis until the later of ten years after the first commercial sale of MM-398 in such country and May 2, 2024. We are responsible for the development and commercialization, and all related costs and expenses, of MM-398 in all countries except Taiwan, where PharmaEngine retains the right to develop and commercialize MM-398 at its expense. Each party has agreed to use commercially reasonable efforts to develop, in accordance with a development plan, and commercialize MM-398 in its respective territory. We also have diligence obligations to initiate a Phase 3 clinical trial of MM-398 in two different solid tumor indications within timeframes specified in the agreement.

Three executive committees were formed under the agreement, each comprised of an equal number of representatives from each party. The steering committee is responsible for reviewing and approving changes to the development plan, providing overall strategic direction with respect to development of MM-398 under the development plan and overseeing other committees. The steering committee is also responsible for resolving any disputes arising under the agreement at the steering committee or that are referred to it by any of the other committees. If a matter is unresolved by the steering committee, it may be referred for resolution to executive officers from both companies. We have final decision making authority on any such matter not resolved by the executive officers that relates to the worldwide development of MM-398 or commercialization of MM-398 outside of Taiwan. The development committee is responsible for recommending to the steering committee changes to the development plan and overseeing the progress of the development program and monitoring the parties' compliance with their respective obligations under the development plan. The manufacturing committee is responsible for overseeing and advising on the preclinical and clinical manufacture of MM-398 and overseeing the transfer of manufacturing responsibility from PharmaEngine to us.

Upon expiration of all royalty and other payment obligations due to PharmaEngine under this agreement on a country-by-country basis, the licenses granted under the agreement will be deemed to be perpetual, fully paid-up and irrevocable with respect to the licensed product in such country. Either party may terminate the agreement in the event of an uncured material breach by the other party. In addition, we may terminate the agreement for convenience upon 90 days' prior written notice. If PharmaEngine terminates this agreement in its entirety or with respect to Europe or the Asian territories because of our material breach, or if we terminate the agreement for convenience with respect to Europe or the Asian territories, then we are required to grant PharmaEngine a license under our technology and rights with respect to MM-398 in Europe or the Asian territories, as applicable, and PharmaEngine is required to pay us single-digit royalties for net sales of MM-398 in such territories.

Dyax

In January 2007, we entered into an amended and restated collaboration agreement with Dyax, which superseded a prior collaboration agreement with Dyax that we entered into in December 2005. Under this collaboration agreement, Dyax uses its proprietary phage display technology to identify antibodies that bind to targets of interest to us as therapeutics or

diagnostics. Further, Dyax has granted to us a worldwide, non-exclusive, royalty free right to use and make any and all of the antibodies identified by Dyax for research purposes. In order to clinically develop or commercialize any such antibody, however, we must obtain an additional product license from Dyax on a target-by-target basis. We have the option to obtain one or more product licenses on terms set forth in the collaboration agreement, subject to limitations on the availability of each such product license under an agreement between Dyax and Cambridge Antibody Technologies, which has merged with MedImmune, LLC and is now owned by AstraZeneca PLC.

As consideration for the grant of the initial research license, we paid Dyax a research fee based on the total estimated full time equivalent researchers that were required to conduct the research plan and a fee for achieving certain technical milestones. If we elect to obtain a product license with respect to any therapeutic or diagnostic target, we are required to pay to Dyax an additional upfront license fee for the applicable antibody. We also will be required to make additional maximum aggregate development and regulatory milestone payments of $16.2 million for therapeutic products and maximum aggregate regulatory milestone payments of $1.0 million for diagnostic products directed to selected targets. In addition, Dyax is entitled to mid single digit royalties based on net sales of products covered by any product license that we obtain from Dyax. Our obligation to pay royalties to Dyax continues on a product-by-product and country-by-country basis until the later of a specified number of years after the first commercial sale of the product in such country and the expiration of the patent rights covering the product in such country. MM-121 was identified under this agreement, and we have obtained a target license from Dyax by exercising our product license option and paying the applicable license fee. We are obligated to use commercially reasonable efforts to develop and commercialize the antibodies for which we obtain a commercial license.

This agreement will remain in effect, unless terminated earlier, for so long as we or any of our affiliates or sublicensees continue to develop or commercialize products that remain royalty-bearing under the agreement. Either party may terminate the agreement in the event of an uncured material breach by the other party. We also may terminate the agreement in its entirety or on a product-by-product basis at any time upon 90 days' prior written notice.

Adimab

In November 2009, we entered into a collaboration agreement with Adimab LLC, or Adimab, to allow us to evaluate the utility of using antibodies identified during the collaboration as therapeutics or diagnostics. Under the agreement, Adimab granted to us a worldwide, non-exclusive, royalty free right to use materials provided by Adimab to perform non-clinical research during the evaluation term. Adimab also granted to us an option, which expires at the end of the evaluation term, to obtain the assignment of specified patent rights claiming the selected antibodies and a license under Adimab's background patent rights and know-how for the development and commercialization of the antibodies.

As partial consideration for the research license grant, we paid Adimab a technology access fee at the time of grant, research fees based on the total estimated full time equivalent researchers that were required to conduct the research plan and a fee for achieving certain technical milestones. We have obtained a commercial license and paid Adimab a commercial license option exercise fee of $1.0 million. In addition, we are required to pay Adimab up to an aggregate of $13.5 million per therapeutic area, for the first four therapeutic areas, upon achievement of specified development and regulatory milestones and up to an aggregate of $500,000 per diagnostic product upon the achievement of specified regulatory milestones. In addition, Adimab is entitled to mid single digit royalty payments based on net sales of therapeutic products and diagnostic products arising from the collaboration. Our obligation to pay royalties to Adimab continues on a product-by-product and country-by-country basis until the later of a specified number of years after the first commercial sale of the product in such country and the expiration of the patent rights covering the product in such country, provided that the royalty term will not extend beyond a specified number of years after the first commercial sale of the product in such country. MM-151 was generated under this agreement, and we have obtained a commercial license from Adimab by exercising our commercial license option and paying the applicable option exercise fee. We are obligated to use commercially reasonable efforts to develop and commercialize the antibodies for which we obtain a commercial license in each of the United States, Europe and Japan.

The term of the agreement expires if our commercial license option expires unexercised or, if we exercise the option, on a country-by-country basis on the earliest date after which no payments are due to Adimab, unless earlier terminated. Either party may terminate the agreement in the event of an uncured material breach by the other party. In addition, we may terminate the agreement at any time upon 90 days' prior written notice.

University of California

2005 agreement

In March 2005, we entered into a license agreement with The Regents of the University of California, or the Regents. Under the agreement, the Regents granted to us a royalty-bearing right and license in the United States and other countries where the Regents have the right to grant the license under certain patent rights and rights in biological materials to develop and commercialize products for therapeutic or diagnostic use in humans that are covered by the licensed patents. Licensed products under this agreement include MM-111. This license is exclusive with respect to certain patents, including those relevant to MM-111, and non-exclusive with respect to other patents and biological materials. The agreement requires that we diligently pursue the development, manufacture and commercialization of licensed products. In addition, we are required to meet specific development, regulatory and commercialization milestones within timeframes specified in the agreement. We have sole responsibility for the development and commercialization of products under the licensed technology. However, the agreement provides that the Regents may require us to sublicense our exclusive rights for the application or use of licensed products covered by any exclusively licensed technology that we are not currently pursuing.

We are required to pay to the Regents an annual license maintenance fee until the first commercial sale of a licensed product and are responsible for all development costs. In addition, we are required to pay to the Regents up to an aggregate of $725,000 per therapeutic product, other than the second therapeutic product, for which we are responsible

for up to an aggregate of $906,250, based on the achievement of specified development and regulatory milestones. The Regents are also entitled to royalties in the low single digits based on net sales of products covered by the licensed technology. A minimum annual royalty is due to the Regents commencing in the earlier of the year of the first commercial sale of a licensed product or 2015. The minimum annual royalty increases from $100,000 in the first year it is payable to $500,000 in the fifth year and thereafter for the life of the patents. If we sublicense the rights granted to us under the licensed technology to a third party, then we are also obligated to pay to the Regents a portion of the sublicensing income related to the licensed technology.

If not terminated earlier, this agreement terminates upon the later of nine years from the market introduction of the last licensed product that contains the licensed biological materials or the expiration of all patent rights licensed under this agreement. At such time, we will have a perpetual, fully paid, world-wide, non-exclusive license. The Regents may terminate the agreement in the event of an uncured material breach by us. We may terminate the agreement on a country-by-country basis at any time upon 60 days' prior written notice.

2000 agreement

In November 2000, we entered into a separate exclusive license agreement with the Regents. Under the agreement, the Regents granted us a royalty-bearing world-wide right and license under certain patent rights for the development and commercialization of products that are covered by the licensed patent rights, including MM-302. The agreement requires that we diligently pursue the development, manufacture and commercialization of licensed products. In addition, we are required to meet specified development, regulatory and commercialization milestones within timeframes specified in the agreement. We have the sole responsibility for the development and commercialization of products under the licensed technology.

We are required to pay to the Regents an annual license maintenance fee until the first commercial sale of a licensed product. We also are responsible for all development costs and have agreed to spend a minimum of $150,000 per year for such costs. In addition, we are responsible for up to an aggregate of $700,000 per product upon the achievement of specified development and regulatory milestones. The Regents are also entitled to royalties in the low single digits based on net sales of products covered by the licensed technology. If we sublicense the rights granted to us under the licensed technology to a third party, then we are also obligated to pay to the Regents a portion of the sublicensing income related to the licensed technology.

If not terminated earlier, this agreement terminates upon the expiration or abandonment of all patents licensed under this agreement. The Regents may terminate the agreement in the event of an uncured material breach by us. We may terminate the agreement on a country-by-country basis at any time upon 60 days' prior written notice.

U.S. Public Health Service

In February 2008, we entered into a commercial license with the U.S. Public Health Service, a division of the U.S. Department of Health and Human Services, for non-exclusive rights in the United States to patents related to ErbB3 and ErbB3 antibodies associated with MM-121 and MM-111. Under the agreement, we are required to make aggregate development and regulatory milestone payments of up to $6.1 million, per therapeutic licensed product, and pay

low single digit royalties on net sales of licensed products. The term of the agreement extends until the expiration of the licensed patent rights, which is 2016.

Selexis

In June 2008, we entered into a commercial license with Selexis SA for non-exclusive rights to technology for use in the manufacture of certain biologic products, including each of our five most advanced product candidates, other than MM-398. Under this agreement, we are required to make aggregate milestone payments of up to €1.0 million, per licensed product, and pay royalties of less than one percent on net sales of licensed products. The obligation to pay royalties with respect to each product sold in a country continues until the expiration of the patent rights covering the product in such country.

Intellectual property

We aggressively strive to protect the proprietary technology that we believe is important to our business, including seeking and maintaining patents intended to cover our products and compositions, their methods of use and processes for their manufacture, as well as our diagnostic and drug discovery technologies and any other inventions that are commercially important to the development of our business. We also rely on trade secrets to protect aspects of our business that are not amenable to, or that we do not consider appropriate for, patent protection, such as our proprietary network modeling programs and large scale protein and liposome production methods.

Our success will significantly depend on our ability to obtain and maintain patent and other proprietary protection for commercially important technology, inventions and know-how related to our business, defend and enforce our patents, preserve the confidentiality of our trade secrets and operate without infringing the valid and enforceable patents and proprietary rights of third parties. We also rely on know-how, continuing technological innovation and in-licensing opportunities to develop and maintain our proprietary position.

We seek to obtain domestic and international patent protection, and endeavor to promptly file patent applications for new commercially valuable inventions once the experimental data necessary for an application become available. We generally file international applications under the Patent Cooperation Treaty, or PCT, within one year after the filing of a U.S. provisional application.

As of May 31, 2011, we owned 16 issued U.S. patents and two issued patents in Europe, and ten issued patents in other jurisdictions, as well as 29 pending U.S. patent applications and 137 pending foreign patent applications in Europe and 42 other jurisdictions. As of May 31, 2011, we had licenses to 33 U.S. patents and nine pending U.S. patent applications, as well as numerous foreign counterparts to many of these patents and patent applications. Of these licensed patents and patent applications, we license the majority on an exclusive basis, with the rest licensed non-exclusively to us. The exclusive licenses are, in some cases, limited to certain technical fields, for example for medical and diagnostic purposes.

The patent portfolios for our five most advanced product candidates as of May 31, 2011 are summarized below.

MM-398

Our MM-398 patent portfolio is wholly owned by us and includes two pending U.S. patent applications covering the composition of and methods of making and using MM-398, both of which, if issued, will expire in 2025. Related international patent applications have issued or been allowed in several countries and are pending in Europe and a number of other countries. These international patents and patent applications, if issued, are also due to expire in 2025.

MM-121

Our MM-121 patent portfolio is wholly owned by us, with the exception of one family of U.S. patents broadly covering anti-ErbB3 antibodies, the last of which will expire in 2016. We license this one family of U.S. patents non-exclusively from the U.S. Public Health Service, a division of the U.S. Department of Health and Human Services. This portfolio includes a U.S. composition of matter patent that will expire in 2028, two related pending U.S. patent applications that, if issued, will expire in 2028 and related international patent applications pending in 24 countries and Europe, which, if issued, will expire in 2028. Pending method of use and diagnostic patents in this portfolio include two PCT applications and a related U.S. application that, if issued, will expire in 2031, and three pending U.S. provisional applications that are eligible for worldwide filing and that may be used to establish non-provisional applications that, if issued, will expire in 2032.

MM-111

Our MM-111 patent portfolio includes two wholly owned, pending U.S. patent applications covering the composition of, and method of use and diagnostics for, MM-111 that, if issued, will expire in 2029. The portfolio also includes four provisional U.S. applications that may be used to establish non-provisional applications that if issued, will expire between 2030 and 2032, and two related PCT applications. This portfolio also includes 15 related patent applications pending in Europe and a number of other jurisdictions that, if issued, will expire in 2028 or 2029.

In addition, this portfolio includes the following licensed patents:

- an exclusively licensed family of patents that will expire in 2023, including an issued U.S. composition of matter patent, an allowed European composition of matter patent application that, upon grant, will be eligible for validation in all European Patent Organization countries and applications pending in a number of other countries; and

- a non-exclusively licensed family of patents that will expire in 2016, including a granted European composition of matter patent that is validated in 11 countries, a pending European divisional application and two applications pending in Canada.

MM-302

Our MM-302 patent portfolio includes two wholly owned provisional U.S. dosage and administration patent applications that may be used to establish non-provisional applications that, if issued, will expire in 2031. These two provisional patent applications are eligible for

worldwide filing, but we intend to file a single consolidated worldwide filing. This portfolio also includes the following exclusively licensed issued U.S. patents:

- five composition of matter patents that will expire between 2014 and 2019; and
- two method of use patents that will expire in 2019.

In addition, this portfolio includes the following exclusively licensed European patents:

- a composition of matter patent that will expire in 2019;
- a composition of matter and method patent that will expire in 2019; and
- a composition of matter patent that will expire in 2014.

Our MM-302 patent portfolio further includes one exclusively licensed composition of matter application that is pending in the United States that, if issued, will expire in 2017, as well as several foreign composition of matter patents and patent applications that expire or, if issued, will expire between 2014 and 2017.

MM-151

Our MM-151 portfolio is exclusively licensed to us and we have an option to cause it to be assigned directly to us and thereby become wholly owned. This portfolio consists of one pending U.S. composition of matter and method of use patent application and one closely related pending PCT application that remains eligible for worldwide filing, each of which, if issued, will expire in 2031.

The term of individual patents depends upon the legal term for patents in the countries in which they are obtained. In most countries, including the United States, the patent term is 20 years from the earliest filing date of a non-provisional patent application. In the United States, a patent's term may be lengthened by patent term adjustment, which compensates a patentee for administrative delays by the U.S. Patent and Trademark Office in examining and granting a patent, or may be shortened if a patent is terminally disclaimed over an earlier filed patent. The term of a patent that covers a drug, biological product or medical device approved pursuant to a pre-market approval, or PMA, may also be eligible for patent term extension when FDA approval is granted, provided statutory and regulatory requirements are met. The length of the patent term extension is related to the length of time the drug is under regulatory review while the patent is in force. The Drug Price Competition and Patent Term Restoration Act of 1984, or the Hatch-Waxman Act, permits a patent term extension of up to five years beyond the expiration date set for the patent. Patent extension cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval, only one patent applicable to each regulatory review period may be granted an extension and only those claims reading on the approved drug are extended. Similar provisions are available in Europe and other foreign jurisdictions to extend the term of a patent that covers an approved drug. In the future, if and when our product candidates receive approval by the FDA or foreign regulatory authorities, we expect to apply for patent term extensions on issued patents covering those products, depending upon the length of the clinical trials for each drug and other factors, including those involved in the filing of a biologics license application, or BLA, or a new drug application, or NDA.

We are currently engaged in three ongoing opposition proceedings to European patents in the European Patent Office to narrow or invalidate the claims of patents owned by third parties.

For more information, see "—Legal proceedings." We have obtained favorable interim decisions in two of the oppositions and a favorable preliminary opinion in the third. However, the ultimate outcome of all three oppositions remains uncertain. We are also aware of issued or pending counterparts to some of these European patents in the United States that may be relevant to our development and commercialization of MM-121. In addition, we are aware of issued U.S. patents held by Genentech, Inc., or Genentech, broadly covering methods of producing certain types of recombinant antibodies and related compositions for antibody production that may be relevant to our development and commercialization of MM-121, MM-302 and MM-151.

We rely, in some circumstances, on trade secrets to protect our technology. However, trade secrets can be difficult to protect. We seek to protect our proprietary technology and processes, in part, by confidentiality agreements with our employees, consultants, scientific advisors and contractors. We also seek to preserve the integrity and confidentiality of our data and trade secrets by maintaining physical security of our premises and physical and electronic security of our information technology systems. While we have confidence in these individuals, organizations and systems, agreements or security measures may be breached, and we may not have adequate remedies for any breach. In addition, our trade secrets may otherwise become known or be independently discovered by competitors. To the extent that our consultants, contractors or collaborators use intellectual property owned by others in their work for us, disputes may arise as to the rights in related or resulting know-how and inventions.

Silver Creek

In August 2010, we acquired 12,000,000 shares of series A convertible preferred stock of Silver Creek, a newly formed company, in exchange for our grant to Silver Creek of technology licenses. We granted to Silver Creek a royalty free license under certain antibody growth factor patent rights to develop and commercialize products covered by the licensed patent rights. This license is exclusive to Silver Creek for therapeutic or diagnostic use in humans for the promotion of organ regeneration and co-exclusive with us for all other uses. We also granted to Silver Creek royalty free, non-exclusive licenses under certain patent rights and know-how to use certain of our technologies for research and development purposes. Either party may terminate the agreement in the event of an uncured material breach by the other party.

In August and December 2010, Silver Creek issued and sold an aggregate of 4,189,904 additional shares of its series A convertible preferred stock at a price per share of $1.00 to other investors for an aggregate purchase price of $4,189,904. As of May 31, 2011, we owned approximately 74% of the outstanding capital stock of Silver Creek, making Silver Creek a majority-owned subsidiary of ours.

Silver Creek's mission is to apply our Network Biology approach to the discovery and development of innovative therapeutics in the field of regenerative medicine. In the future, we may consider forming additional businesses or business units to apply our Network Biology approach to multiple additional disease areas outside the oncology field. We expect to do so in some cases, as with Silver Creek, through the establishment of separately funded companies.

Government regulation

Government authorities in the United States, at the federal, state and local level, and in other countries extensively regulate, among other things, the research, development, testing, manufacture, including any manufacturing changes, packaging, storage, recordkeeping, labeling, advertising, promotion, distribution, marketing, post-approval monitoring and reporting, import and export of pharmaceutical products, biological products and medical devices, such as those we are developing.

United States drug and biological product approval process

In the United States, the FDA regulates drugs and biological products under the Federal Food, Drug, and Cosmetic Act, or FDCA, the Public Health Service Act, or PHSA, and implementing regulations. The process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state, local and foreign statutes and regulations requires the expenditure of substantial time and financial resources. Failure to comply with the applicable United States requirements at any time during the product development process, approval process or after approval, may subject an applicant to a variety of administrative or judicial sanctions, such as the FDA's refusal to approve pending applications, withdrawal of an approval, imposition of a clinical hold, issuance of warning letters, product recalls, product seizures, total or partial suspension of production or distribution injunctions, fines, refusals of government contracts, restitution, disgorgement of profits or civil or criminal penalties.

The process required by the FDA before a drug or biological product may be marketed in the United States generally involves the following:

- completion of preclinical laboratory tests, animal studies and formulation studies in compliance with the FDA's good laboratory practice, or GLP, regulations;
- submission to the FDA of an IND, which must become effective before human clinical trials may begin;
- approval by an independent institutional review board, or IRB, at each clinical site before each trial may be initiated;
- performance of adequate and well-controlled human clinical trials in accordance with good clinical practices, or GCP, to establish the safety and efficacy of the proposed drug or biological product for each indication;
- submission to the FDA of an NDA or BLA;
- satisfactory completion of an FDA advisory committee review, if applicable;
- satisfactory completion of an FDA inspection of the manufacturing facility or facilities at which the product is produced to assess compliance with cGMP requirements and to assure that the facilities, methods and controls are adequate to preserve the drug's identity, strength, quality and purity; and
- FDA review and approval of the NDA or BLA.

We expect that all of our product candidates, other than MM-398, will be subject to review as biological products under BLA standards. We expect that MM-398 will be subject to review as a drug under NDA standards. MM-302 contains both drug and biological components. We believe that this combination product will be subject to review as a biological product pursuant to a BLA. However, it is possible that the FDA could consider MM-302 subject to review pursuant to an NDA.

Preclinical studies

Preclinical studies include laboratory evaluation of product chemistry and formulation, as well as *in vitro* and animal studies to assess the potential for adverse events and in some cases to establish a rationale for therapeutic use. The conduct of preclinical studies is subject to federal regulations and requirements, including GLP regulations. An IND sponsor must submit the results of the preclinical tests, together with manufacturing information, analytical data, any available clinical data or literature and plans for clinical studies, among other things, to the FDA as part of an IND. Some long-term preclinical testing, such as animal tests of reproductive adverse events and carcinogenicity, may continue after the IND is submitted. An IND automatically becomes effective 30 days after receipt by the FDA, unless before that time the FDA raises concerns or questions related to one or more proposed clinical trials and places the trial on clinical hold. In such a case, the IND sponsor and the FDA must resolve any outstanding concerns before the clinical trial can begin. As a result, submission of an IND may not result in the FDA allowing clinical trials to commence.

Clinical trials

Clinical trials involve the administration of the investigational new drug to human subjects under the supervision of qualified investigators in accordance with GCP requirements, which include, among other things, the requirement that all research subjects provide their informed consent in writing before their participation in any clinical trial. Clinical trials are conducted under written study protocols detailing, among other things, the objectives of the study, the parameters to be used in monitoring safety and the effectiveness criteria to be evaluated. A protocol for each clinical trial and any subsequent protocol amendments must be submitted to the FDA as part of the IND. In addition, an IRB at each institution participating in the clinical trial must review and approve the plan for any clinical trial before it commences at that institution, and the IRB must conduct continuing review and reapprove the study at least annually. The IRB must review and approve, among other things, the study protocol and informed consent information to be provided to study subjects. An IRB must operate in compliance with FDA regulations. Information about certain clinical trials must be submitted within specific timeframes to the National Institutes of Health for public dissemination on their ClinicalTrials.gov website.

Human clinical trials are typically conducted in three sequential phases, which may overlap or be combined:

- *Phase 1:* The drug or biological product is initially introduced into healthy human subjects or patients with the target disease or condition and tested for safety, dosage tolerance, absorption, metabolism, distribution, excretion and, if possible, to gain an early indication of its effectiveness.

- *Phase 2:* The drug or biological product is administered to a limited patient population to identify possible adverse effects and safety risks, to preliminarily evaluate the efficacy of the product for specific targeted diseases and to determine dosage tolerance and optimal dosage.

- *Phase 3:* The drug or biological product is administered to an expanded patient population in adequate and well-controlled clinical trials to generate sufficient data to statistically confirm the efficacy and safety of the product for approval, to establish the overall

risk-benefit profile of the product and to provide adequate information for the labeling of the product.

Progress reports detailing the results of the clinical trials must be submitted at least annually to the FDA and more frequently if serious adverse events occur. Phase 1, Phase 2 and Phase 3 clinical trials may not be completed successfully within any specified period, or at all. Furthermore, the FDA or the sponsor may suspend or terminate a clinical trial at any time on various grounds, including a finding that the research subjects are being exposed to an unacceptable health risk. Similarly, an IRB can suspend or terminate approval of a clinical trial at its institution if the clinical trial is not being conducted in accordance with the IRB's requirements or if the drug has been associated with unexpected serious harm to patients.

Marketing approval

Assuming successful completion of the required clinical testing, the results of the preclinical and clinical studies, together with detailed information relating to the product's chemistry, manufacture, controls and proposed labeling, among other things, are submitted to the FDA as part of an NDA or BLA requesting approval to market the product for one or more indications. Under federal law, the submission of most NDAs and BLAs is additionally subject to a substantial application user fee, currently exceeding $1.5 million, and the sponsor of an approved NDA or BLA are also subject to annual product and establishment user fees, currently exceeding $86,000 per product and $497,000 per establishment. These fees are typically increased annually.

The FDA conducts a preliminary review of all NDAs and BLAs within the first 60 days after submission before accepting them for filing to determine whether they are sufficiently complete to permit substantive review. The FDA may request additional information rather than accept an NDA or BLA for filing. In this event, the application must be resubmitted with the additional information. The resubmitted application is also subject to review before the FDA accepts it for filing. Once the submission is accepted for filing, the FDA begins an in-depth substantive review. The FDA has agreed to specified performance goals in the review of NDAs and BLAs. Most such applications for non-priority products are reviewed within ten months, and most applications for priority review products, that is, drugs and biologics that the FDA determines represent a significant improvement over existing therapy, are reviewed in six months. The review process may be extended by the FDA for three additional months to consider certain information or clarification regarding information already provided in the submission. The FDA may also refer applications for novel drugs or biological products or products that present difficult questions of safety or efficacy to an advisory committee, typically a panel that includes clinicians and other experts, for review, evaluation and a recommendation as to whether the application should be approved. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions.

Before approving an NDA or BLA, the FDA typically will inspect the facility or facilities where the product is manufactured. The FDA will not approve an application unless it determines that the manufacturing processes and facilities are in compliance with cGMP requirements and adequate to assure consistent production of the product within required specifications. In addition, before approving an NDA or BLA, the FDA will typically inspect one or more clinical sites to assure compliance with GCP and integrity of the clinical data submitted.

The testing and approval process requires substantial time, effort and financial resources, and each may take many years to complete. Data obtained from clinical activities are not always conclusive and may be susceptible to varying interpretations, which could delay, limit or prevent regulatory approval. The FDA may not grant approval on a timely basis, or at all. We may encounter difficulties or unanticipated costs in our efforts to develop our product candidates and secure necessary governmental approvals, which could delay or preclude us from marketing our products.

After the FDA's evaluation of the NDA or BLA and inspection of the manufacturing facilities, the FDA may issue an approval letter or a complete response letter. An approval letter authorizes commercial marketing of the drug or biological product with specific prescribing information for specific indications. A complete response letter generally outlines the deficiencies in the submission and may require substantial additional testing or information in order for the FDA to reconsider the application. If and when those deficiencies have been addressed to the FDA's satisfaction in a resubmission of the NDA, the FDA will issue an approval letter. The FDA has committed to reviewing such resubmissions in two or six months depending on the type of information included. Even with submission of this additional information, the FDA ultimately may decide that the application does not satisfy the regulatory criteria for approval.

Even if the FDA approves a product, it may limit the approved indications for use for the product, require that contraindications, warnings or precautions be included in the product labeling, require that post-approval studies, including Phase 4 clinical trials, be conducted to further assess a drug's safety after approval, require testing and surveillance programs to monitor the product after commercialization, or impose other conditions, including distribution restrictions or other risk management mechanisms, which can materially affect the potential market and profitability of the product. The FDA may prevent or limit further marketing of a product based on the results of post-market studies or surveillance programs. After approval, some types of changes to the approved product, such as adding new indications, manufacturing changes and additional labeling claims, are subject to further testing requirements and FDA review and approval.

Fast track designation

The FDA is required to facilitate the development and expedite the review of drugs and biologics that are intended for the treatment of a serious or life-threatening condition for which there is no effective treatment and which demonstrate the potential to address unmet medical needs for the condition. Under the fast track program, the sponsor of a new drug or biologic candidate may request the FDA to designate the product for a specific indication as a fast track product concurrent with or after the filing of the IND for the product candidate. The FDA must determine if the product candidate qualifies for fast track designation within 60 days after receipt of the sponsor's request.

In addition to other benefits, such as the ability to use surrogate endpoints and have greater interactions with the FDA, the FDA may initiate review of sections of a fast track product's NDA or BLA before the application is complete. This rolling review is available if the applicant provides and the FDA approves a schedule for the submission of the remaining information and the applicant pays applicable user fees. However, the FDA's time period goal for reviewing a fast track application does not begin until the last section of the NDA or BLA is submitted. In

addition, the fast track designation may be withdrawn by the FDA if the FDA believes that the designation is no longer supported by data emerging in the clinical trial process.

Priority review

Under FDA policies, a product candidate may be eligible for priority review, or review within a six-month time frame from the time a complete application is accepted for filing. Products regulated by the FDA's Center for Drug Evaluation and Research, or CDER, are eligible for priority review if they provide a significant improvement compared to marketed products in the treatment, diagnosis or prevention of a disease. Products regulated by the FDA's Center for Biologics Evaluation and Research are eligible for priority review if they provide a significant improvement in the safety or effectiveness of the treatment, diagnosis or prevention of a serious or life-threatening disease. A fast track designated product candidate would ordinarily meet the FDA's criteria for priority review.

Accelerated approval

Under the FDA's accelerated approval regulations, the FDA may approve a drug or biologic for a serious or life-threatening illness that provides meaningful therapeutic benefit to patients over existing treatments based upon a surrogate endpoint that is reasonably likely to predict clinical benefit. In clinical trials, a surrogate endpoint is a measurement of laboratory or clinical signs of a disease or condition that substitutes for a direct measurement of how a patient feels, functions or survives. Surrogate endpoints can often be measured more easily or more rapidly than clinical endpoints. A product candidate approved on this basis is subject to rigorous post-marketing compliance requirements, including the completion of Phase 4 or post-approval clinical trials to confirm the effect on the clinical endpoint. Failure to conduct required post-approval studies, or confirm a clinical benefit during post-marketing studies, would allow the FDA to withdraw the drug from the market on an expedited basis. All promotional materials for drug candidates approved under accelerated regulations are subject to prior review by the FDA.

Pediatric Information

Under the Pediatric Research Equity Act of 2003, as amended and reauthorized by the Food and Drug Administration Amendments Act of 2007, or the FDAAA, an NDA, BLA or supplement to an NDA or BLA must contain data that are adequate to assess the safety and effectiveness of the drug or biological product for the claimed indications in all relevant pediatric subpopulations, and to support dosing and administration for each pediatric subpopulation for which the product is safe and effective. The FDA may, on its own initiative or at the request of the applicant, grant deferrals for submission of some or all pediatric data until after approval of the product for use in adults, or full or partial waivers from the pediatric data requirements. Unless otherwise required by regulation, the pediatric data requirements do not apply to products with orphan drug designation.

The Hatch-Waxman Act

Abbreviated new drug applications

In seeking approval for a drug through an NDA, applicants are required to list with the FDA each patent with claims that cover the applicant's product. Upon approval of a drug, each of the patents listed in the application for the drug is then published in the FDA's Approved Drug Products with Therapeutic Equivalence Evaluations, commonly known as the Orange Book.

Drugs listed in the Orange Book can, in turn, be cited by potential competitors in support of approval of an abbreviated new drug application, or ANDA. Generally, an ANDA provides for marketing of a drug product that has the same active ingredients in the same strengths and dosage form as the listed drug and has been shown through bioequivalence testing to be therapeutically equivalent to the listed drug. ANDA applicants are not required to conduct or submit results of preclinical or clinical tests to prove the safety or effectiveness of their drug product, other than the requirement for bioequivalence testing. Drugs approved in this way are commonly referred to as "generic equivalents" to the listed drug, and can often be substituted by pharmacists under prescriptions written for the original listed drug.

The ANDA applicant is required to certify to the FDA concerning any patents listed for the approved product in the FDA's Orange Book. Specifically, the applicant must certify that:

- the required patent information has not been filed;
- the listed patent has expired;
- the listed patent has not expired, but will expire on a particular date and approval is sought after patent expiration; or
- the listed patent is invalid or will not be infringed by the new product.

A certification that the new product will not infringe the already approved product's listed patents or that such patents are invalid is called a Paragraph IV certification. If the applicant does not challenge the listed patents, the ANDA application will not be approved until all the listed patents claiming the referenced product have expired.

If the ANDA applicant has provided a Paragraph IV certification to the FDA, the applicant must also send notice of the Paragraph IV certification to the NDA and patent holders once the ANDA has been accepted for filing by the FDA. The NDA and patent holders may then initiate a patent infringement lawsuit in response to the notice of the Paragraph IV certification. The filing of a patent infringement lawsuit within 45 days after the receipt of a Paragraph IV certification automatically prevents the FDA from approving the ANDA until the earlier of 30 months, expiration of the patent, settlement of the lawsuit or a decision in the infringement case that is favorable to the ANDA applicant.

The ANDA also will not be approved until any applicable non-patent exclusivity, such as exclusivity for obtaining approval of a new chemical entity, listed in the Orange Book for the referenced product has expired. Federal law provides a period of five years following approval of a drug containing no previously approved active ingredients during which ANDAs for generic versions of those drugs cannot be submitted unless the submission contains a Paragraph IV challenge to a listed patent, in which case the submission may be made four years following the original product approval. Federal law provides for a period of three years of exclusivity following approval of a listed drug that contains previously approved active ingredients but is approved in a new dosage form, route of administration or combination, or for a new use, the approval of which was required to be supported by new clinical trials conducted by or for the sponsor, during which the FDA cannot grant effective approval of an ANDA based on that listed drug. Under the Best Pharmaceuticals for Children Act, federal law also provides that periods of patent and non-patent marketing exclusivity listed in the Orange Book for a drug may be extended by six months if the NDA sponsor conducts pediatric studies

identified by the FDA in a written request. For written requests issued by the FDA after September 27, 2007, the date of enactment of the FDAAA, the FDA must grant pediatric exclusivity no later than nine months prior to the date of expiration of patent or non-patent exclusivity in order for the six-month pediatric extension to apply to that exclusivity period.

Section 505(b)(2) new drug applications

Most drug products obtain FDA marketing approval pursuant to an NDA or an ANDA. A third alternative is a special type of NDA, commonly referred to as a Section 505(b)(2) NDA, which enables the applicant to rely, in part, on the FDA's previous approval of a similar product, or published literature, in support of its application.

505(b)(2) NDAs often provide an alternate path to FDA approval for new or improved formulations or new uses of previously approved products. Section 505(b)(2) permits the filing of an NDA where at least some of the information required for approval comes from studies not conducted by or for the applicant and for which the applicant has not obtained a right of reference. If the 505(b)(2) applicant can establish that reliance on the FDA's previous approval is scientifically appropriate, it may eliminate the need to conduct certain preclinical or clinical studies of the new product. The FDA may also require companies to perform additional studies or measurements to support the change from the approved product. The FDA may then approve the new product candidate for all or some of the label indications for which the referenced product has been approved, as well as for any new indication sought by the Section 505(b)(2) applicant.

To the extent that the Section 505(b)(2) applicant is relying on studies conducted for an already approved product, the applicant is required to certify to the FDA concerning any patents listed for the approved product in the Orange Book to the same extent that an ANDA applicant would. As a result, approval of a 505(b)(2) NDA can be stalled until all the listed patents claiming the referenced product have expired, until any non-patent exclusivity, such as exclusivity for obtaining approval of a new chemical entity, listed in the Orange Book for the referenced product has expired, and, in the case of a Paragraph IV certification and subsequent patent infringement suit, until the earlier of 30 months, settlement of the lawsuit or a decision in the infringement case that is favorable to the Section 505(b)(2) applicant.

Combination products

The FDA regulates combinations of products that cross FDA centers, such as biologic, drug or medical device components that are physically, chemically or otherwise combined into a single entity, as a combination product. The FDA center with primary jurisdiction for the combination product will take the lead in the premarket review of the product using that center's marketing application for submission purposes, with the other center consulting or collaborating with the lead center.

The FDA's Office of Combination Products, or OCP, determines which center will have primary jurisdiction for the combination product based on the combination product's "primary mode of action." A mode of action is the means by which a product achieves an intended therapeutic effect or action. The primary mode of action is the mode of action that provides the most important therapeutic action of the combination product, or the mode of action expected to make the greatest contribution to the overall intended therapeutic effects of the combination product.

Often it is difficult for the OCP to determine with reasonable certainty the most important therapeutic action of the combination product. In those difficult cases, the OCP will consider consistency with other combination products raising similar types of safety and effectiveness questions, or which center has the most expertise to evaluate the most significant safety and effectiveness questions raised by the combination product.

A sponsor may use a voluntary formal process, known as a Request for Designation, when the product classification is unclear or in dispute, to obtain a binding decision as to which center will regulate the combination product. If the sponsor objects to that decision, it may request that the agency reconsider that decision.

Biosimilars law

The Biologics Price Competition and Innovation Act of 2009, or BPCIA, amended the PHSA to create a new licensure framework for biosimilar products, which could ultimately subject our biological products to competition. Under the BPCIA, a manufacturer may submit an application for licensure of a biologic product that is "biosimilar to" or "interchangeable with" a referenced, branded biologic product. Previously, there had been no licensure pathway for such biosimilar or interchangeable products. For purposes of the BPCIA, a reference product is defined as the single biological product licensed under a full BLA against which a biological product is evaluated in an application submitted under a follow-on BLA.

The BPCIA also created a 12-year period of reference product exclusivity, which can be extended to 12 1/2 years with pediatric exclusivity. The 12-year exclusivity period begins on the date of first licensure of the reference product under the PHSA and during which the licensure of a follow-on application for a biosimilar or interchangeable product cannot be made effective. During the first four years (or four and one-half years with pediatric exclusivity) of the 12-year period, an application for a biosimilar or interchangeable version of the reference product cannot be submitted to the FDA. Under a budget proposal President Obama submitted to Congress in 2011, beginning in 2012, reference product exclusivity would decrease from 12 to seven years. Congress has not yet enacted, but could move to enact, such a decrease in the reference product exclusivity period.

The BPCIA includes limits on obtaining 12-year reference product exclusivity for certain changes or modifications to the reference product. A separate 12-year reference product exclusivity period does not apply to:

- a BLA supplement for the product that is the reference product;
- a subsequent BLA filed by the same reference product sponsor or manufacturer (or a licensor, predecessor in interest, or other related entity) for a change (not including a modification to the structure of the biological product) that results in a new indication, route of administration, dosing schedule, dosage form, delivery system, delivery device or strength; or
- a modification to the structure of the biological product that does not result in a change in safety, purity or potency.

The FDA has not yet issued proposed regulations setting forth its interpretation of the BPCIA's exclusivity provisions and it is unclear when the FDA will do so.

In addition to creating a 12-year period of reference product exclusivity, the BPCIA clarifies the interaction of that exclusivity with orphan drug exclusivity, such that the licensure of a biosimilar or interchangeable version of a reference product that was designated and approved as an orphan drug may only occur after the later of the expiration of any applicable seven-year orphan drug exclusivity or the 12-year reference product exclusivity (or seven and one-half years and $12^{1}/_{2}$ years with pediatric exclusivity).

Like pediatric exclusivity applicable to drug products approved under the FDCA, pediatric exclusivity applicable to biological reference products is subject to an exception. Pediatric exclusivity will not apply to either the 12-year reference product or the seven-year orphan drug exclusivity periods if the FDA determines later than nine months prior to the expiration of such period that the study reports a BLA sponsor submitted in response to a written request for pediatric studies met the terms of that request.

Our investigational biological products, if approved, could be considered reference products entitled to 12-year exclusivity. Even if our products are considered to be reference products eligible for exclusivity, another company could market a competing version of any of our biological products if the FDA approves a full BLA for such product containing the sponsor's own preclinical data and data from adequate and well-controlled clinical trials to demonstrate the safety, purity and potency of their product.

The BPCIA also sets forth a complex mechanism for resolving patent disputes that involves a step-wise exchange of information prior to the initiation of a patent infringement lawsuit against a biosimilar or interchangeable product sponsor. Unlike the Hatch-Waxman Act, the BPCIA provides no automatic stay on approval of a biosimilar or interchangeable product application.

Overview of FDA regulation of companion diagnostics

We are developing companion diagnostics for use in selecting the patients that we believe will respond to our cancer therapeutics. The FDA has not issued guidance for companion diagnostics. FDA officials have indicated that the agency intends to promulgate in the near future draft guidance that will address the development of diagnostics after the drug or biologic already is on the market. The FDA later would issue draft guidance on co-development, or the development of the drug or biologic and the diagnostic at the same time. These two items of guidance, when finalized, are expected to address issues critical to developing companion diagnostics, such as biomarker qualification, establishing clinical validity, the use of retrospective data, the appropriate patient population and when the FDA will require that the device and the drug be approved simultaneously.

Even in the absence of guidance, the FDA previously has required companion diagnostics intended to select the patients who will respond to the cancer treatment to obtain PMA, simultaneously with approval of the drug or licensure of the biologic. We believe that the FDA will require one or more PMAs for our companion diagnostics to identify patient populations suitable for our cancer therapies. These companion diagnostics require coordination of review by CDER and by the FDA's Center for Devices and Radiological Health Office of In Vitro Diagnostics Device Evaluation and Safety.

PMA approval pathway

A medical device, including an *in vitro* diagnostic, or IVD, to be commercially distributed in the United States must receive either 510(k) clearance or PMA approval from the FDA prior to marketing. Devices deemed by the FDA to pose the greatest risk, such as life-sustaining, life supporting or implantable devices, or devices deemed not substantially equivalent to a previously 510(k) cleared device or a preamendment class III device for which PMA applications have not been called, are placed in Class III requiring PMA approval. The PMA approval pathway requires proof of the safety and effectiveness of the device to the FDA's satisfaction. The PMA approval pathway generally takes from one to three years or even longer from submission of the application.

A PMA application for an IVD must provide extensive preclinical and clinical trial data. Preclinical data for an IVD includes many different tests, including how reproducible the results are when the same sample is tested multiple times by multiple users at multiple laboratories. The clinical data need to establish that the test is sufficiently safe, effective and reliable in the intended use population. In addition, the FDA must be convinced that a device has clinical utility, meaning that an IVD provides information that is clinically meaningful. A biomarker's clinical significance may be obvious, or the applicant may be able to rely upon published literature or submit data to show clinical utility.

A PMA application also must provide information about the device and its components regarding, among other things, device design, manufacturing and labeling. The sponsor must pay an application fee.

As part of the PMA review, the FDA will typically inspect the manufacturer's facilities for compliance with Quality System Regulation, or QSR, requirements, which impose elaborate testing, control, documentation and other quality assurance procedures.

Upon submission, the FDA determines if the PMA application is sufficiently complete to permit a substantive review, and, if so, the FDA accepts the application for filing. The FDA then commences an in-depth review of the PMA application. The entire process typically takes one to three years, but may take longer. The review time is often significantly extended as a result of the FDA asking for more information or clarification of information already provided. The FDA also may respond with a not approvable determination based on deficiencies in the application and require additional clinical trials that are often expensive and time consuming and can substantially delay approval.

During the review period, an FDA advisory committee, typically a panel of clinicians, likely will be convened to review the application and recommend to the FDA whether, or upon what conditions, the device should be approved. Although the FDA is not bound by the advisory panel decision, the panel's recommendation is important to the FDA's overall decision making process.

If the FDA's evaluation of the PMA application is favorable, the FDA typically issues an approvable letter requiring the applicant's agreement to specific conditions, such as changes in labeling, or specific additional information, such as submission of final labeling, in order to secure final approval of the PMA. If the FDA concludes that the applicable criteria have been met, the FDA will issue a PMA for the approved indications, which can be more limited than those originally sought by the manufacturer. The PMA can include post-approval conditions

that the FDA believes necessary to ensure the safety and effectiveness of the device, including, among other things, restrictions on labeling, promotion, sale and distribution. Failure to comply with the conditions of approval can result in material adverse enforcement action, including the loss or withdrawal of the approval.

Even after approval of a PMA, a new PMA or PMA supplement may be required in the event of a modification to the device, its labeling or its manufacturing process. Supplements to a PMA often require the submission of the same type of information required for an original PMA, except that the supplement is generally limited to the information needed to support the proposed change from the product covered by the original PMA.

Clinical trials

A clinical trial is almost always required to support a PMA application. In some cases, one or more smaller Investigational Device Exemption, or IDE, studies may precede a pivotal clinical trial intended to demonstrate the safety and efficacy of the investigational device.

All clinical studies of investigational devices must be conducted in compliance with the FDA's requirements. If an investigational device could pose a significant risk to patients pursuant to FDA regulations, the FDA must approve an IDE application prior to initiation of investigational use. IVD trials usually do not require an IDE, as the FDA does not judge them to be a significant risk because the results do not affect the patients in the study. However, for a trial where the IVD result directs the therapeutic care of patients with cancer, we believe that the FDA would consider the investigation to present significant risk.

An IDE application must be supported by appropriate data, such as laboratory test results, showing that it is safe to test the device in humans and that the testing protocol is scientifically sound. The FDA typically grants IDE approval for a specified number of patients. A nonsignificant risk device does not require FDA approval of an IDE. Both significant risk and nonsignificant risk investigational devices require approval from IRBs at the study centers where the device will be used.

During the trial, the sponsor must comply with the FDA's IDE requirements for investigator selection, trial monitoring, reporting and record keeping. The investigators must obtain patient informed consent, rigorously follow the investigational plan and study protocol, control the disposition of investigational devices and comply with all reporting and record keeping requirements. Prior to granting PMA approval, the FDA typically inspects the records relating to the conduct of the study and the clinical data supporting the PMA application for compliance with applicable requirements.

Although the QSR does not fully apply to investigational devices, the requirement for controls on design and development does apply. The sponsor also must manufacture the investigational device in conformity with the quality controls described in the IDE application and any conditions of IDE approval that the FDA may impose with respect to manufacturing.

Post-market

After a device is on the market, numerous regulatory requirements apply. These requirements include: the QSR, labeling regulations, the FDA's general prohibition against promoting products for unapproved or "off label" uses, the Medical Device Reporting regulation, which requires that manufacturers report to the FDA if their device may have caused or contributed

to a death or serious injury or malfunctioned in a way that would likely cause or contribute to a death or serious injury if it were to recur, and the Reports of Corrections and Removals regulation, which requires manufacturers to report recalls and field actions to the FDA if initiated to reduce a risk to health posed by the device or to remedy a violation of the FDCA.

The FDA enforces these requirements by inspection and market surveillance. If the FDA finds a violation, it can institute a wide variety of enforcement actions, ranging from a public warning letter to more severe sanctions such as: fines, injunctions and civil penalties; recall or seizure of products; operating restrictions, partial suspension or total shutdown of production; refusing requests for PMA approval of new products; withdrawing PMA approvals already granted; and criminal prosecution.

Other regulatory requirements

Any drug or biological products manufactured or distributed by us pursuant to FDA approvals are subject to pervasive and continuing regulation by the FDA, including, among other things, requirements relating to recordkeeping, periodic reporting, product sampling and distribution, advertising and promotion and reporting of adverse experiences with the product. After approval, most changes to the approved product, such as adding new indications or other labeling claims are subject to prior FDA review and approval.

The FDA may impose a number of post-approval requirements as a condition of approval of an NDA or BLA. For example, the FDA may require post-marketing testing, including phase 4 clinical trials, and surveillance to further assess and monitor the product's safety and effectiveness after commercialization. Regulatory approval of oncology products often requires that patients in clinical trials be followed for long periods to determine the overall survival benefit of the drug or biologic.

In addition, drug and biologic manufacturers and other entities involved in the manufacture and distribution of approved drugs and biological products are required to register their establishments with the FDA and state agencies, and are subject to periodic unannounced inspections by the FDA and these state agencies for compliance with cGMP requirements. Changes to the manufacturing process are strictly regulated and often require prior FDA approval before being implemented. FDA regulations also require investigation and correction of any deviations from cGMP and impose reporting and documentation requirements upon us and any third party manufacturers that we may decide to use. Accordingly, manufacturers must continue to expend time, money and effort in the areas of production and quality control to maintain cGMP compliance.

Once an approval is granted, the FDA may withdraw the approval if compliance with regulatory requirements and standards is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with manufacturing processes, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to add new safety information, imposition of post-market studies or clinical trials to assess new safety risks or imposition of distribution or other restrictions under a Risk Evaluation and Mitigation Strategy program. Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of the product, complete withdrawal of the product from the market or product recalls;

- fines, warning letters or holds on post-approval clinical trials;
- refusal of the FDA to approve pending applications or supplements to approved applications, or suspension or revocation of product license approvals;
- product seizure or detention, or refusal to permit the import or export of products; or
- consent decrees, injunctions or the imposition of civil or criminal penalties.

The FDA strictly regulates marketing, labeling, advertising and promotion of products that are placed on the market. Drugs and biologics may be promoted only for the approved indications and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off label uses, and a company that is found to have improperly promoted off label uses may be subject to significant liability.

Additional provisions

Anti-kickback and false claims laws

In addition to FDA restrictions on marketing of pharmaceutical products, several other types of state and federal laws have been applied to restrict certain marketing practices in the pharmaceutical industry in recent years. These laws include anti-kickback statutes and false claims statutes. The federal healthcare program anti-kickback statute prohibits, among other things, knowingly and willfully offering, paying, soliciting or receiving remuneration to induce or in return for purchasing, leasing, ordering or arranging for the purchase, lease or order of any healthcare item or service reimbursable under Medicare, Medicaid or other federally financed healthcare programs. This statute has been interpreted to apply to arrangements between pharmaceutical manufacturers on the one hand and prescribers, purchasers and formulary managers on the other. Violations of the anti-kickback statute are punishable by imprisonment, criminal fines, civil monetary penalties and exclusion from participation in federal healthcare programs. Although there are a number of statutory exemptions and regulatory safe harbors protecting certain common activities from prosecution or other regulatory sanctions, the exemptions and safe harbors are drawn narrowly, and practices that involve remuneration intended to induce prescribing, purchases or recommendations may be subject to scrutiny if they do not qualify for an exemption or safe harbor.

Federal false claims laws prohibit any person from knowingly presenting, or causing to be presented, a false claim for payment to the federal government, or knowingly making, or causing to be made, a false statement to have a false claim paid. Recently, several pharmaceutical and other healthcare companies have been prosecuted under these laws for allegedly inflating drug prices they report to pricing services, which in turn were used by the government to set Medicare and Medicaid reimbursement rates, and for allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product. In addition, certain marketing practices, including off-label promotion, may also violate false claims laws. The majority of states also have statutes or regulations similar to the federal anti-kickback law and false claims laws, which apply to items and services reimbursed under Medicaid and other state programs, or, in several states, apply regardless of the payor.

Physician drug samples

As part of the sales and marketing process, pharmaceutical companies frequently provide samples of approved drugs to physicians. The Prescription Drug Marketing Act, or the PDMA, imposes requirements and limitations upon the provision of drug samples to physicians, as well as prohibits states from licensing distributors of prescription drugs unless the state licensing program meets certain federal guidelines that include minimum standards for storage, handling and record keeping. In addition, the PDMA sets forth civil and criminal penalties for violations.

Foreign regulation

In order to market any product outside of the United States, we would need to comply with numerous and varying regulatory requirements of other countries regarding safety and efficacy and governing, among other things, clinical trials, marketing authorization, commercial sales and distribution of our products. Whether or not we obtain FDA approval for a product, we would need to obtain the necessary approvals by the comparable regulatory authorities of foreign countries before we can commence clinical trials or marketing of the product in those countries. The approval process varies from country to country and can involve additional product testing and additional administrative review periods. The time required to obtain approval in other countries might differ from and be longer than that required to obtain FDA approval. Regulatory approval in one country does not ensure regulatory approval in another, but a failure or delay in obtaining regulatory approval in one country may negatively impact the regulatory process in others.

To date, we have not initiated any discussions with the European Medicines Agency or any other foreign regulatory authorities with respect to seeking regulatory approval for any of our products in Europe or in any other country outside the United States.

New legislation and regulations

From time to time, legislation is drafted, introduced and passed in Congress that could significantly change the statutory provisions governing the testing, approval, manufacturing and marketing of products regulated by the FDA. For example, the FDAAA and the BPCIA discussed above were enacted in 2007 and 2010, respectively. In addition to new legislation, FDA regulations and policies are often revised or interpreted by the agency in ways that may significantly affect our business and our products. It is impossible to predict whether further legislative changes will be enacted or whether FDA regulations, guidance, policies or interpretations changed or what the effect of such changes, if any, may be.

Pharmaceutical coverage, pricing and reimbursement

Significant uncertainty exists as to the coverage and reimbursement status of any drug products for which we obtain regulatory approval. Sales of any of our product candidates, if approved, will depend, in part, on the extent to which the costs of the products will be covered by third party payors, including government health programs such as Medicare and Medicaid, commercial health insurers and managed care organizations. The process for determining whether a payor will provide coverage for a drug product may be separate from the process for setting the price or reimbursement rate that the payor will pay for the drug product once coverage is approved. Third party payors may limit coverage to specific drug

products on an approved list, or formulary, which might not include all of the approved drugs for a particular indication.

In order to secure coverage and reimbursement for any product that might be approved for sale, we may need to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of the product, in addition to the costs required to obtain FDA or other comparable regulatory approvals. Our product candidates may not be considered medically necessary or cost-effective. A payor's decision to provide coverage for a drug product does not imply that an adequate reimbursement rate will be approved. Third party reimbursement may not be sufficient to enable us to maintain price levels high enough to realize an appropriate return on our investment in product development.

The containment of healthcare costs has become a priority of federal, state and foreign governments, and the prices of drugs have been a focus in this effort. Third party payors are increasingly challenging the prices charged for medical products and services and examining the medical necessity and cost-effectiveness of medical products and services, in addition to their safety and efficacy. If these third party payors do not consider our products to be cost-effective compared to other available therapies, they may not cover our products after approval as a benefit under their plans or, if they do, the level of payment may not be sufficient to allow us to sell our products at a profit. The U.S. government, state legislatures and foreign governments have shown significant interest in implementing cost containment programs to limit the growth of government-paid health care costs, including price controls, restrictions on reimbursement and requirements for substitution of generic products for branded prescription drugs. Adoption of such controls and measures, and tightening of restrictive policies in jurisdictions with existing controls and measures, could limit payments for pharmaceuticals such as the drug candidates that we are developing and could adversely affect our net revenue and results.

Pricing and reimbursement schemes vary widely from country to country. Some countries provide that drug products may be marketed only after a reimbursement price has been agreed. Some countries may require the completion of additional studies that compare the cost-effectiveness of a particular product candidate to currently available therapies. For example, the European Union provides options for its member states to restrict the range of drug products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. European Union member states may approve a specific price for a drug product or may instead adopt a system of direct or indirect controls on the profitability of the company placing the drug product on the market. Other member states allow companies to fix their own prices for drug products, but monitor and control company profits. The downward pressure on health care costs in general, particularly prescription drugs, has become very intense. As a result, increasingly high barriers are being erected to the entry of new products. In addition, in some countries, cross-border imports from low-priced markets exert competitive pressure that may reduce pricing within a country. There can be no assurance that any country that has price controls or reimbursement limitations for drug products will allow favorable reimbursement and pricing arrangements for any of our products.

The marketability of any products for which we receive regulatory approval for commercial sale may suffer if the government and third party payors fail to provide adequate coverage and reimbursement. In addition, an increasing emphasis on managed care in the United States has

increased and we expect will continue to increase the pressure on drug pricing. Coverage policies, third party reimbursement rates and drug pricing regulation may change at any time. In particular, the Patient Protection and Affordable Care Act was enacted in the United States in March 2010 and contain provisions that may reduce the profitability of drug products, including, for example, increased rebates for drugs sold to Medicaid programs, extension of Medicaid rebates to Medicaid managed care plans, mandatory discounts for certain Medicare Part D beneficiaries and annual fees based on pharmaceutical companies' share of sales to federal health care programs. Even if favorable coverage and reimbursement status is attained for one or more products for which we receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

Employees

As of May 31, 2011, we had 190 full-time employees, including a total of 67 employees with M.D. or Ph.D. degrees. Of these full-time employees, 159 employees are engaged in research, development and manufacturing. None of our employees is represented by a labor union or covered by collective bargaining agreements. We consider our relationship with our employees to be good.

Facilities

Our principal facilities consist of approximately 77,000 square feet of research, manufacturing and office space located at One Kendall Square in Cambridge, Massachusetts. The lease on approximately 33,000 square feet of this space expires in April 2015. The lease on the remaining approximately 44,000 square feet of this space expires in April 2013, subject to our option to extend the lease for two individual one year terms to either April 2014 or April 2015. At the expiration of our lease in 2015, we retain an option to renew the lease on all of our current space for an additional five years.

The facilities of our Silver Creek subsidiary consist of approximately 1,354 square feet of research and office space located in San Francisco, California. The lease on this space expires in August 2011, subject to an option to extend the lease for six additional months.

Legal proceedings

We are currently engaged in three ongoing opposition proceedings to European patents in the European Patent Office to narrow or invalidate the claims of patents owned by third parties. We have obtained favorable interim decisions in two of the oppositions. These decisions are now under appeal. In the third opposition, we have received a favorable preliminary opinion. The ultimate outcome of all three oppositions remains uncertain.

We filed our notice of opposition in the first proceeding, opposing a patent (EP 0896586) held by Genentech, in July 2007 on the grounds of added matter, insufficient disclosure, lack of novelty and lack of inventive step. Amgen and U3 Pharma also opposed the Genentech patent. If the issued claims of the Genentech patent were determined to be valid and construed to cover MM-121 or MM-111, our development and commercialization of these product candidates in Europe could be delayed or prevented. In August 2009, the European Patent Office issued a written decision rejecting several sets of Genentech's claims and upholding the patent solely on the basis of a further set of claims that we believe will not restrict the

development or commercialization of MM-121 or MM-111. All parties have appealed this decision. Pending the outcome of the appeal proceedings, the original issued claims of the Genentech patent remain in effect. Each party has submitted written statements regarding the appeal to the European Patent Office. No date has been set for a hearing for the appeal.

We filed our notice of opposition in the second proceeding, opposing a patent (EP 1187634) held by Zensun (Shanghai) Science and Technology Ltd., or Zensun, in September 2008 on the grounds of added matter, insufficient disclosure, lack of novelty and lack of inventive step. If the issued claims of the Zensun patent were determined to be valid and construed to cover MM-111, our development and commercialization of MM-111 in Europe could be delayed or prevented. In August 2010, the European Patent Office issued a written decision revoking Zensun's patent. Zensun has appealed this decision. Pending the outcome of this appeal, the original issued claims of the Zensun patent remain in effect. Each party has submitted written statements regarding the appeal to the European Patent Office. No date has been set for a hearing for the appeal.

We filed our notice of opposition in the third proceeding, opposing a patent (EP 1414494) held by Max-Planck-Gesellschaft zur Forderung der Wissenschaften e.V., or Max Planck, in December 2009 on the grounds of added matter, insufficient disclosure, lack of novelty and lack of inventive step. A number of other pharmaceutical companies are also opposing the Max-Planck patent. If the issued claims of the Max-Planck patent were determined to be valid and construed to cover MM-121, our development and commercialization of MM-121 in Europe could be delayed or prevented. In February 2011, the European Patent Office issued a favorable preliminary, non-binding opinion indicating that Max Planck does not currently have any valid sets of claims on file with respect to this patent. A hearing for this opposition is scheduled for November 2011.

We are not currently a party to any other material legal proceedings.

Management

The following table sets forth the name, age and position of each of our executive officers and directors as of May 31, 2011.

Name	Age	Position
Robert J. Mulroy(4)	47	President, Chief Executive Officer and Director
Fazal R. Khan, Ph.D.	61	Senior Vice President of Manufacturing
Ulrik B. Nielsen, Ph.D.	39	Senior Vice President and Chief Scientific Officer
Clet Niyikiza, Ph.D.	53	Executive Vice President of Development
Edward J. Stewart	40	Senior Vice President of Business Development
William A. Sullivan	40	Chief Financial Officer and Treasurer
Gary L. Crocker(2)(4)	59	Chairman of the Board of Directors
James van B. Dresser(1)	69	Director
Gordon J. Fehr(1)(3)	78	Director
Robert C. Gay, Ph.D.(2)	59	Director
Walter M. Lovenberg, Ph.D.(3)	76	Director
Sarah E. Nash(1)	57	Director
Michael E. Porter, Ph.D.(4)	64	Director
Anthony J. Sinskey, Sc.D.(3)	71	Director

(1) Member of the audit committee.

(2) Member of the corporate governance and nominating committee.

(3) Member of the organization and compensation committee.

(4) Member of the executive committee.

Robert J. Mulroy has served as our President and Chief Executive Officer and a member of our board of directors since May 1999. Prior to joining us, Mr. Mulroy worked as a management consultant in the pharmaceutical and healthcare industries. Mr. Mulroy has also worked as a consultant in the field of international development and has served as an advisor to multiple start-up companies in the biotechnology industry. Mr. Mulroy holds a master's degree in public and private management from Yale University and a B.A. from Stanford University. We believe that Mr. Mulroy is qualified to serve on our board of directors because of his extensive executive leadership experience, many years of service as one of our directors and our President and Chief Executive Officer and extensive knowledge of our company and industry.

Fazal R. Khan, Ph.D. has served as our Senior Vice President of Manufacturing since April 2006. Prior to joining us, Dr. Khan served as Vice President of Manufacturing for Cellective Therapeutics, Inc., Vice President of Manufacturing Operations at Human Genome Sciences and Director of Biopharmaceuticals Development and Manufacturing at Hoffmann-LaRoche, Inc. Dr. Khan holds a Ph.D. and an M.S. in biochemistry and a B.S. in biology from Aligarh University in India.

Ulrik B. Nielsen, Ph.D. has served as our Senior Vice President and Chief Scientific Officer since March 2009. Dr. Nielsen has also served as President and Chief Executive Officer and as a

member of the board of directors of Silver Creek Pharmaceuticals, Inc., since July 2010. Dr. Nielsen was one of our co-founders and has been leading our research and drug discovery since March 2002, first as our Director of Research from March 2002 to December 2004 and then as our Vice President of Research from January 2005 to February 2009. Prior to joining us, Dr. Nielsen was a post-doctoral fellow at The Massachusetts Institute of Technology, or MIT, where he researched the interface among biology, engineering and computational biology. Dr. Nielsen holds a Ph.D. in molecular biology and an M.S. in biochemistry from the University of Copenhagen.

Clet Niyikiza, Ph.D. has served as our Executive Vice President of Development since February 2010. Dr. Niyikiza served as our Senior Vice President of Product Development from July 2009 to February 2010. Previously, Dr. Niyikiza served as Vice President and Medicine Development Leader at GlaxoSmithKline, overseeing product development and global anti-cancer medicine development strategy, from 2005 to July 2009. Prior to that, Dr. Niyikiza held multiple high level positions at Eli Lilly and Company, where he ultimately led the oncology translational and applied genomics research division. Dr. Niyikiza holds a Ph.D. in mathematical sciences and an M.A. in mathematics from Indiana University.

Edward J. Stewart has served as our Senior Vice President of Business Development since March 2009. Mr. Stewart served as our Director of Business Development from August 2001 to July 2006, as our Senior Director of Business Development from August 2006 to July 2007 and as our Vice President of Business Development from July 2007 to March 2009. Mr. Stewart began his career at KPMG Peat Marwick LLP in the life sciences strategy consulting group. Mr. Stewart holds an M.B.A. from the Johnson Graduate School of Management at Cornell University and a B.S. in biology from Bates College.

William A. Sullivan has served as our Chief Financial Officer since May 2011 and our Treasurer since February 2010. Mr. Sullivan served as our Controller from November 2007 to February 2010 and our Vice President of Finance from February 2010 to May 2011. Previously, Mr. Sullivan served as Corporate Controller of Vette Corp., a thermal management solutions company, from October 2004 to November 2007. Mr. Sullivan began his career at Arthur Andersen LLP, where he obtained his certified public accountant license. Mr. Sullivan holds an M.B.A. and an M.S. in accounting from Northeastern University's Graduate School of Professional Accounting and a B.A. in economics from Williams College.

Gary L. Crocker has served as a member of our board of directors since 2004 and as chairman of our board of directors since 2005. Mr. Crocker is President, Manager and Chairman of Crocker Ventures, LLC, a privately-held life science investment firm funding differentiated technologies in the areas of biotechnology and medical devices. Mr. Crocker has held senior executive positions or served on the board of directors of several privately-held life science companies, including as chairman of the board of ARUP Laboratories, co-founder and director of Theratech, Inc., President and Chief Executive Officer, founder and member of the board of directors of Research Medical, Inc. and as a member of the board of directors of Interleuken Genetics, Inc., The Med-Design Corporation and LineaGen Genetics, LLC. Mr. Crocker served as a member of the board of the Federal Reserve Branch of San Francisco from 1999 to 2007. Mr. Crocker also serves as a member of the board of directors of Sorenson Legacy Foundation. Mr. Crocker holds an M.B.A. and a B.S. in economics from Harvard University. We believe that Mr. Crocker is qualified to serve on our board of directors due to his experience in the life sciences industry as an entrepreneur, venture capitalist and executive and his service on the

boards of directors of a range of public and private companies and government institutions, as well as his ability to provide us with his expertise in diagnostics and therapeutic development.

James van B. Dresser has served as a member of our board of directors since 1999. From 1970 until his retirement in 1997, Mr. Dresser held various consulting and leadership positions at The Boston Consulting Group, including serving as the firm's first Chief Administrative Officer from 1982 to 1997. Mr. Dresser served on the Board of Trustees of Wesleyan University from 1990 until 1993 and again from 1995 until 2009, when he also served as the chairman of the Board of Trustees. Mr. Dresser currently serves as a selectman for the Town of Salisbury, Connecticut. Mr. Dresser holds an M.B.A. from Harvard University, an M.A. from the Fletcher School of Law and Diplomacy at Tufts University and a B.A. from Wesleyan University. We believe that Mr. Dresser is qualified to serve on our board of directors due to his background and experience in business and organizational strategy, both as a consultant for and the chief administrative officer of a global management consulting firm and his prior board service.

Gordon J. Fehr has served as a member of our board of directors since 1999. Mr. Fehr also currently serves on the board of directors of the Research Institute of McGill University Health Centers. In 1963, Mr. Fehr joined Pfizer Canada, Inc., or Pfizer Canada, as the Assistant to the President of Pfizer Canada and later became Pfizer Canada's Controller and the General Manager of the Chemical Division. In 1972, Mr. Fehr was named Chairman and President of Pfizer Canada, a position he held until his retirement in 1994. Mr. Fehr served as a member of the board of directors of Labopharm, Inc. from 1998 to 2007. Mr. Fehr also served as President and Chairman of the Montreal Board of Trade from 1983 to 1984 and as a member of board of directors of the Montreal Airport Authority from 1992 to 2002. In addition, Mr. Fehr has served on advisory boards for the National Research Council's Biotechnology Research Institute and the Montreal Center of Innovative Technology, where he was Chairman of the biotechnology committee. Mr. Fehr holds a B.Eng. in chemical engineering from McGill University. We believe that Mr. Fehr is qualified to serve on our board of directors due to his expertise in the commercialization of pharmaceuticals, his leadership and management experience from his service as an executive for a public pharmaceutical company and his knowledge of our business and industry.

Robert C. Gay, Ph.D. has served as a member of our board of directors since 2007. Dr. Gay currently is a Managing Director and the Chief Executive Officer of Huntsman Gay Global Capital, a private equity firm, which he co-founded in 2008. From 1989 to 2004, Dr. Gay was a Managing Director of Bain Capital. Prior to that, Dr. Gay served as an Executive Vice President of General Electric Credit Corporation Capital Markets Group. Dr. Gay serves on the board of directors of The Gymboree Corporation and Sunquest Information Systems, Inc. and serves as vice chairman of the board of directors of ICON Health & Fitness, Inc. Dr. Gay holds a Ph.D. in business economics from Harvard Business School and an A.B. from the University of Utah. We believe that Dr. Gay is qualified to serve on our board of directors due to his educational qualifications and his broad industry experience in business management, financing and development, as well as the unique perspective he brings from the range of executive positions and directorships that he has held and currently holds.

Walter M. Lovenberg, Ph.D. has served as a member of our board of directors since 2000. Dr. Lovenberg is the President of Lovenberg Associates, Inc., a privately-held corporation, a position he has held since 1993 and is also the current acting Chief Executive Officer and a director of Quantum Bio, Inc. Dr. Lovenberg served on the board of directors of OSI

Pharmaceuticals, Inc. from 1994 until 2008 and as the chairman of the board of directors of Inflazyme Pharmaceuticals from 1996 until 2006. Dr. Lovenberg served as Executive Vice President and a member of the board of directors of Marion Merrell Dow, Inc. from 1989 until 1993. Dr. Lovenberg served as Chief of the section of Biochemical Pharmacology at the National Institutes of Health from 1968 to 1985. Dr. Lovenberg holds a Ph.D. from the George Washington University School of Medicine and Health Sciences and an M.S. in agricultural biochemistry and a B.S. in agriculture from Rutgers University. We believe that Dr. Lovenberg is qualified to serve on our board of directors due to his expertise and experience in drug discovery, development and management, his experience leading global research and development efforts, and his service on the board of directors at several pharmaceutical companies.

Sarah E. Nash has served as a member of our board of directors since 2006. Ms. Nash also currently serves on the boards of directors of Knoll Inc. and Blackbaud Inc. From 2000 until her retirement in 2005, Ms. Nash served as vice chairman of JPMorgan Chase & Co.'s Investment Bank where she was responsible for the firm's client relationships. Prior to that, Ms. Nash was the Regional Executive and Co-Head of Investment Banking for North America at JPMorgan Chase & Co. Previously, Ms. Nash served on the board of directors of Pathmark Stores, Inc. from 2005 to 2009 and AbitibiBowater from 2010 to 2011. Ms. Nash also serves as a Trustee for the New York-Presbyterian Hospital, a Trustee of Washington and Lee University and on the boards of The New York Historical Society, The New York Restoration Project and the Business Leadership Council of The City University of New York. Ms. Nash holds a B.A. from Vassar College. We believe that Ms. Nash is qualified to serve on our board of directors due to her financial expertise, her experience serving on the boards of other public and private companies and her management background as an executive in the financial services industry.

Michael E. Porter, Ph.D. has served as a member of our board of directors since December 2010 and has been a strategy advisor to us since 1999. Dr. Porter is the Bishop William Lawrence University Professor at Harvard Business School and has been on the faculty at Harvard Business School since 1973. Dr. Porter also serves on the boards of directors of Parametric Technology Corporation and Thermo Fisher Scientific Inc. Dr. Porter has written extensively on healthcare delivery and has worked with leading healthcare providers in multiple countries and with government leaders on healthcare policy issues. Dr. Porter holds a Ph.D. in business economics from Harvard University, an M.B.A. from Harvard Business School and a B.S.E. in aerospace and mechanical engineering from Princeton University. We believe that Dr. Porter is qualified to serve on our board of directors due to his expertise in corporate strategy, healthcare delivery and the development of companies in the life sciences industry, as well as his experience as an advisor and consultant to many leading companies globally, including a range of healthcare and pharmaceutical companies.

Anthony J. Sinskey, Sc.D. has served as a member of our board of directors since 1999 and is one of our co-founders. Dr. Sinskey is a Professor of Microbiology and Engineering Systems at MIT and a Professor of Health Sciences and Technology at the Harvard-MIT Division of Health Sciences and Technology, and he has been a member of the faculty at MIT since 1968. Dr. Sinskey also holds positions as Co-Director of the Malaysia-MIT Biotechnology Partnership Program and as Faculty Director of the Center for Biomedical Innovation. Dr. Sinskey is a co-founder and a member of the boards of directors of Metabolix, Inc. and Tepha, Inc. and a consultant to several chemical and biotechnology companies. Dr. Sinskey received an Sc.D. from

MIT and a B.S. from the University of Illinois, and he was a post-doctoral fellow at the Harvard School of Public Health. We believe that Dr. Sinskey is qualified to serve on our board of directors due to his experience in the startup and development of other pharmaceutical companies, his scientific expertise in the field of biology and his leadership experience gained from serving as a director of several pharmaceutical companies.

Board composition and election of directors

Our board of directors is currently authorized to have nine members. In accordance with the terms of our restated certificate of incorporation and our amended and restated bylaws that will become effective upon the closing of this offering, our board of directors will be divided into three classes, class I, class II and class III, with members of each class serving staggered three-year terms. Upon the closing of this offering, the members of the classes will be divided as follows:

- the class I directors will be Mr. Dresser, Dr. Lovenberg and Dr. Sinskey, and their term will expire at the annual meeting of stockholders to be held in 2012;
- the class II directors will be Mr. Fehr, Dr. Gay and Ms. Nash, and their term will expire at the annual meeting of stockholders to be held in 2013; and
- the class III directors will be Mr. Crocker, Mr. Mulroy and Dr. Porter, and their term will expire at the annual meeting of stockholders to be held in 2014.

Upon the expiration of the term of a class of directors, directors in that class will be eligible to be elected for a new three-year term at the annual meeting of stockholders in the year in which their term expires. Our directors may be removed only for cause by the affirmative vote of the holders of 75% or more of our voting stock.

Our board of directors has determined that each of our directors, other than Mr. Mulroy, are independent directors, as defined by the applicable NASDAQ Marketplace Rules.

There are no family relationships among any of our directors or executive officers.

Board leadership structure

Our board of directors, upon the recommendation of our corporate governance and nominating committee, has determined that the roles of Chairman of the board and Chief Executive Officer should be separated at the current time. Accordingly, our board has appointed Mr. Crocker, an independent director within the meaning of NASDAQ Marketplace Rules, as the Chairman of the board of directors. Mr. Crocker's duties as Chairman of the board include the following:

- chairing meetings of the board and of the independent directors in executive session;
- meeting with any director who is not adequately performing his or her duties as a member of our board or any committee;
- facilitating communications between other members of our board and the Chief Executive Officer;

- determining the frequency and length of board meetings and recommending when special meetings of our board should be held;
- preparing or approving the agenda for each board meeting; and
- reviewing and, if appropriate, recommending action to be taken with respect to written communications from stockholders submitted to our board.

Our board of directors decided to separate the roles of Chairman and Chief Executive Officer because it believes that a bifurcated leadership structure offers the following benefits:

- increasing the independent oversight of our company and enhancing our board's objective evaluation of our Chief Executive Officer;
- freeing the Chief Executive Officer to focus on company operations instead of board administration;
- providing the Chief Executive Officer with an experienced sounding board;
- providing greater opportunities for communication between stockholders and our board;
- enhancing the independent and objective assessment of risk by our board; and
- providing an independent spokesman for our company.

Board committees

Our board of directors has established an audit committee, a corporate governance and nominating committee, an organization and compensation committee and an executive committee, each of which operates under a charter that has been approved by our board. The composition of each committee will be effective upon the closing of this offering.

Our board of directors has determined that all of the members of the audit committee, the corporate governance and nominating committee and the organization and compensation committee are independent as defined under The NASDAQ Marketplace Rules, including, in the case of all the members of our audit committee, the independence requirements contemplated by Rule 10A-3 under the Securities Exchange Act of 1934, as amended, or the Exchange Act.

Audit committee

The members of our audit committee are Mr. Dresser, Mr. Fehr and Ms. Nash. Ms. Nash chairs the audit committee. Upon the closing of this offering, our audit committee's responsibilities will include:

- appointing, approving the compensation of, and assessing the independence of our registered public accounting firm;
- overseeing the work of our independent registered public accounting firm, including through the receipt and consideration of reports from such firm;
- reviewing and discussing with management and the independent registered public accounting firm our annual and quarterly financial statements and related disclosures;

- monitoring our internal control over financial reporting, disclosure controls and procedures and code of business conduct and ethics;
- overseeing our internal audit function;
- overseeing our risk assessment and risk management policies;
- establishing policies regarding hiring employees from the independent registered public accounting firm and procedures for the receipt and retention of accounting related complaints and concerns;
- meeting independently with our internal auditing staff, registered public accounting firm and management;
- reviewing and approving or ratifying any related person transactions; and
- preparing the audit committee report required by SEC rules.

All audit and non-audit services, other than *de minimis* non-audit services, to be provided to us by our independent registered public accounting firm must be approved in advance by our audit committee.

Our board of directors has determined that Mr. Fehr is an "audit committee financial expert" as defined in applicable SEC rules. We believe that the composition of our audit committee meets the requirements for independence under the current NASDAQ Marketplace and SEC rules and regulations.

Corporate governance and nominating committee

The members of our corporate governance and nominating committee are Mr. Crocker and Dr. Gay. Dr. Gay chairs the corporate governance and nominating committee. Upon the closing of this offering, our corporate governance and nominating committee's responsibilities will include:

- identifying individuals qualified to become members of our board;
- recommending to our board the persons to be nominated for election as directors and to each of our board's committees;
- reviewing and making recommendations to our board with respect to our board leadership structure;
- reviewing and making recommendations to our board with respect to management succession planning;
- developing and recommending to our board corporate governance principles; and
- overseeing an annual evaluation of our board.

Organization and compensation committee

The members of our organization and compensation committee are Mr. Fehr, Dr. Lovenberg and Dr. Sinskey. Mr. Fehr chairs the organization and compensation committee. Upon the

closing of this offering, our organization and compensation committee's responsibilities will include:

- annually reviewing and approving corporate goals and objectives relevant to the compensation of our Chief Executive Officer and our other executive officers;
- determining our Chief Executive Officer's compensation;
- reviewing and approving, or making recommendations to our board with respect to, the compensation of our other executive officers;
- overseeing an evaluation of our executive officers;
- overseeing and administering our cash and equity incentive plans;
- reviewing and making recommendations to our board with respect to director compensation;
- reviewing and discussing annually with management our "Compensation discussion and analysis" disclosure required by SEC rules; and
- preparing the organization and compensation committee report required by SEC rules.

Executive committee

The members of our executive committee are Mr. Crocker, Mr. Mulroy and Dr. Porter. Mr. Crocker chairs the executive committee. Upon the closing of this offering, our executive committee will have, and may exercise, when necessary, all of the authority and powers of our full board of directors during the intervals between meetings of our board, except as limited by Delaware law.

Compensation committee interlocks and insider participation

None of our executive officers serves as a member of the board of directors or compensation committee, or other committee serving an equivalent function, of any other entity that has one or more of its executive officers serving as a member of our board of directors or our organization and compensation committee. None of the members of our organization and compensation committee has ever been our employee.

Executive compensation

Compensation discussion and analysis

Overview

This section discusses the principles underlying our policies and decisions with respect to the compensation of our executive officers and the most important factors relevant to an analysis of these policies and decisions. This section also describes the material elements of compensation awarded to, earned by or paid to each of our named executive officers for 2010. Our "named executive officers" for 2010 are Robert J. Mulroy, our President and Chief Executive Officer, William A. Sullivan, our Chief Financial Officer and Treasurer, Lisa A. Evren, our former Chief Financial Officer, and our three other most highly compensated executive officers, Ulrik B. Nielsen, our Senior Vice President and Chief Scientific Officer, Clet M. Niyikiza, our Executive Vice President of Development, and Edward J. Stewart, our Senior Vice President of Business Development. In addition, this section provides qualitative information regarding the manner and context in which compensation is awarded to and earned by our executive officers and is intended to place in perspective the data presented in the tables and narrative that follow.

Our organization and compensation committee oversees our policies governing the compensation for our executive officers. In this role, the organization and compensation committee reviews and approves all compensation decisions relating to our named executive officers. Our organization and compensation committee consists of three members of our board of directors, all of whom have extensive experience in our industry and each of whom is an independent director. Our organization and compensation committee uses its judgment and experience and has historically considered the recommendations of our President and Chief Executive Officer when determining the amount and appropriate mix of compensation for each of our executive officers. Specifically, our President and Chief Executive Officer provides input and recommendations, via an annual review of executive performance and otherwise, regarding salary adjustments, the corporate and individual goals used to determine annual performance-based cash bonuses and appropriate equity incentive compensation levels. Historically, our President and Chief Executive Officer has provided input to the organization and compensation committee on his own compensation, but has not had any control over setting the amount or mix of his compensation and is not present when the organization and compensation committee discusses his compensation.

The organization and compensation committee periodically evaluates the need for revisions to our executive compensation program to ensure our program is competitive with the companies with which we compete for executive talent.

Objectives and philosophy of our executive compensation program

The primary objectives of the organization and compensation committee with respect to executive compensation are to:

- attract, retain and motivate experienced and talented executives;
- ensure executive compensation is aligned with our corporate strategies, research and development programs and business goals;

- recognize the individual contributions of executives but foster a shared commitment among executives by aligning their individual goals with our corporate goals;

- promote the achievement of key strategic, development and operational performance measures by linking compensation to the achievement of measurable corporate and individual performance goals; and

- align the interests of our executives with our stockholders by rewarding performance that leads to the creation of stockholder value.

To achieve these objectives, the organization and compensation committee evaluates our executive compensation program with the goal of setting compensation at levels that are justifiable based on each executive's level of experience, performance and responsibility and that the committee believes are competitive with those of other companies in our industry and our region that compete with us for executive talent. In addition, our executive compensation program ties a portion of each executive's overall compensation to the achievement of key corporate and individual goals. We provide a portion of our executive compensation in the form of stock options that vest over time, which we believe helps to retain our executives and aligns their interests with those of our stockholders by allowing them to participate in the longer term success of our company as reflected in the appreciation of our stock price.

Use of compensation consultants and market benchmarking

Our organization and compensation committee considers publicly available compensation data for national and regional companies in the biotechnology industry to help guide its executive compensation decisions at the time of hiring and for subsequent adjustments in compensation. Historically, our organization and compensation committee has also retained the services of Mercer, LLC, or Mercer, an independent compensation consultant, to provide it with additional comparative data on executive compensation practices in our industry and to advise it on our executive compensation program generally. Although the organization and compensation committee considers Mercer's advice and recommendations about our executive compensation program, the organization and compensation committee ultimately makes its own decisions about these matters.

Mercer has in the past, most recently in 2010, provided our organization and compensation committee with comparative data showing where our total compensation and each element of our compensation rated among (1) both public and private companies in the biotechnology and life sciences industry generally, according to compensation data from the 2010 Radford Global Life Sciences Survey, and (2) a peer group of publicly traded companies in the life science industry at a stage of development, market capitalization or size comparable to ours with which the organization and compensation committee believes we compete against for executive talent. The companies included in this peer group in 2010 were:

Achillion Pharmaceuticals	Ariad Pharmaceuticals, Inc.	Pharmasset, Inc.
Acorda Therapeutics, Inc.	Micromet, Inc.	Rigel Pharmaceuticals, Inc.
Affymax Inc.	Oculus Innovative Sciences	Targacept, Inc.
Allos Therapeutics, Inc.	Osiris Therapeutics, Inc.	Trubion Pharmaceuticals, Inc.

This peer group is subject to change, and we expect that our organization and compensation committee will periodically review and update the list. The peer group is used for purposes of

gathering data to compare against our existing executive compensating practices and for guiding future compensation decisions. Our compensation consultant also makes suggestions for changes to our executive compensation practices based on the data they provide to us as well as compensation trends in our industry. However, although the organization and compensation committee may consider peer group and other industry compensation data and the recommendations of our compensation consultant when making decisions related to executive compensation, to date, it has not made and does not intend to make adjustments to overall executive compensation or any element thereof solely or primarily either to target a specified threshold level of compensation or market benchmark within the peer group, our larger industry or some other group of comparable companies or to act on the recommendations of our compensation consultant.

Annual compensation review process

During the first calendar quarter of each year, we evaluate each executive's performance for the prior year. Our President and Chief Executive Officer, with respect to each executive other than himself, prepares a written evaluation based on his evaluation of the executive and input from others within our company. Our President and Chief Executive Officer also prepares his own self assessment. This process leads to a recommendation by our President and Chief Executive Officer to the organization and compensation committee with respect to each executive officer, including himself, as to:

- the achievement of stated corporate and individual performance goals;
- the level of contributions made to the general management and guidance of the company;
- the need for salary increases;
- the amount of bonuses to be paid; and
- whether or not stock option awards should be made.

These recommendations are reviewed by the organization and compensation committee and taken into account when it makes a final determination on all such matters.

Components of our executive compensation program

The primary elements of our executive compensation program are:

- base salary;
- annual performance-based cash bonuses;
- equity incentive awards;
- broad-based health and welfare benefits; and
- severance and change in control benefits.

We do not have a formal or informal policy for allocating between long-term and short-term compensation, between cash and non-cash compensation or among different forms of non-cash compensation. Instead, our organization and compensation committee, after reviewing information provided by our compensation consultant, and other relevant data, determines subjectively what it believes to be the appropriate level and mix of the various compensation

components. We generally strive to provide our named executive officers with a balance of short-term and long-term incentives to encourage consistently strong performance. Ultimately, the objective in allocating between long-term and currently paid compensation is to ensure adequate base compensation to attract and retain personnel, while providing incentives to maximize long-term value for our company and our stockholders. Therefore, we provide cash compensation in the form of base salary to meet competitive salary norms and reward good performance on an annual basis and in the form of bonus compensation to incent and reward superior performance based on specific annual goals. To further focus our executives on longer-term performance and the creation of stockholder value, we rely upon equity-based awards that vest over a meaningful period of time. In addition, we provide our executives with benefits that are generally available to our salaried employees, including medical, dental, group life insurance, accidental death, dismemberment insurance, long and short term disability insurance, medical and dependent care flexible spending accounts, personal welfare reimbursement stipends and matching contributions in our 401(k) plan. Finally, we offer our executives severance benefits to incentivize them to continue to strive to achieve stockholder value in connection with change in control situations.

Base salary

We use base salaries to recognize the experience, skills, knowledge and responsibilities of our employees, including our executive officers. Base salaries for our named executive officers typically are established through arm's length negotiation at the time the executive is hired, taking into account the position for which the executive is being considered and the executive's qualifications, prior experience and prior salary. None of our executive officers is currently party to an employment agreement that provides for automatic or scheduled increases in base salary. However, on an annual basis, our organization and compensation committee reviews and evaluates, with input from our President and Chief Executive Officer, the need for adjustment of the base salaries of our executives based on changes and expected changes in the scope of an executive's responsibilities, including promotions, the individual contributions made by and performance of the executive during the prior fiscal year, the executive's performance over a period of years, overall labor market conditions, the relative ease or difficulty of replacing the executive with a well-qualified person, our overall growth and development as a company and general salary trends in our industry and among our peer group and where the executive's salary falls in the salary range presented by that data. In making decisions regarding salary increases, we may also draw upon the experience of members of our board of directors with other companies. No formulaic base salary increases are provided to our named executive officers, and we do not target the base salaries of our named executive officers at a specified compensation level within our peer group or other market benchmark.

The following table sets forth the annual base salary for 2010 and 2011 for our named executive officers:

Executive	2010 Base salary(1)	2011 Base salary(1)
Robert J. Mulroy *President and Chief Executive Officer*	$ 432,253	$ 457,330
William A. Sullivan(2) *Chief Financial Officer and Treasurer*	$ 240,000	$ 247,200
Lisa A. Evren(3) *Former Chief Financial Officer*	—	—
Ulrik B. Nielsen *Senior Vice President and Chief Scientific Officer*	$ 287,370	$ 302,940
Clet M. Niyikiza *Executive Vice President of Development*	$ 329,892	$ 341,651
Edward J. Stewart *Senior Vice President of Business Development*	$ 254,582	$ 268,376

(1) The adjustments to our 2010 base salaries were effective February 1, 2010 and the adjustment to our 2011 base salaries were effective April 1, 2011.

(2) Mr. Sullivan's salary was $170,969 as of January 1, 2010 and was increased to $240,000 as of July 1, 2010 in connection with his promotion to Vice President of Finance in February 2010 and his later appointment as an executive officer. Mr. Sullivan was promoted to Chief Financial Officer in May 2011.

(3) Ms. Evren left the company in January 2010 and was paid $19,355 in total salary for 2010.

In 2010, the organization and compensation committee approved base salary increases for Mr. Mulroy, Dr. Nielsen, Dr. Niyikiza, Mr. Sullivan and Mr. Stewart to recognize their overall performance in 2009, their increased level of experience and, as a result of our growth in our industry, to ensure that their salaries remained competitive with those of similarly situated executives in our peer group. In addition, Dr. Nielsen's salary was increased from his 2009 level in recognition of his promotion to Chief Scientific Officer and Mr. Stewart's salary was increased from his 2009 level in recognition of his promotion to Senior Vice President of Business Development. Mr. Sullivan's salary was increased in July 2010 from $170,969 to $240,000 in connection with his promotion to Vice President of Finance in February 2010, which resulted in increased responsibilities for him as he assumed the duties of the Chief Financial Officer who departed in January 2010, and his later appointment as an executive officer.

For 2011, the organization and compensation committee determined to adjust the base salaries of Mr. Mulroy, Dr. Nielsen, Dr. Niyikiza, Mr. Sullivan and Mr. Stewart based on their overall performance in 2010, their increased level of experience and, as a result of our continued growth in our industry, to ensure that their salaries remained competitive with those of similarly situated executives in our peer group.

Annual performance-based cash bonus

We have designed our annual performance-based cash bonus program to emphasize pay-for-performance and to reward our named executive officers for (1) the achievement of specified annual corporate objectives, (2) the achievement of specified annual individual

performance objectives and (3) the achievement of specified objectives that support the overall management of the company and the creation of long-term value for our stockholders, which we refer to as the general management contribution. Each executive officer is eligible to receive an annual performance-based cash bonus, which we refer to as an annual cash bonus, in an amount up to a fixed percentage of his base salary, or bonus percentage, and each of the foregoing three elements is weighted equally in determining the percentage of the annual cash bonus that the executive will receive.

The annual corporate objectives component of the annual cash bonus focuses on the achievement of specific research, clinical, regulatory, operational and financial milestones. The corporate objectives are proposed by senior management each year in the company's annual operating plan that is reviewed and approved by our board of directors at its regularly scheduled meeting in the fourth quarter of our fiscal year, with such modifications as the board deems appropriate. The annual individual performance objectives component of the annual cash bonus focuses on contributions made by each individual executive officer within their respective areas of responsibility that facilitate the achievement of our corporate objectives. Each executive officer, including our President and Chief Executive Officer, proposes his own annual individual objectives prior to the start of the company's fiscal year relating to building our long-term capabilities, which are then reviewed and approved by the organization and compensation committee, with such modifications as the committee deems appropriate. Achievement of the corporate and individual objectives is measured on a successful/unsuccessful basis and proportionate achievement of a particular goal is not taken into account. Our organization and compensation committee has the authority to shift both corporate and individual goals to subsequent fiscal years and eliminate them from the current year's bonus calculation if it determines that circumstances that were beyond the control of the executive were the primary cause of a goal being unattainable. The corporate and individual objectives established by our board of directors and the organization and compensation committee are designed to require significant effort and operational success on the part of our executives and our company, but also to be achievable with hard work and dedication.

The general management contribution of each executive officer, including our President and Chief Executive Officer, is evaluated retrospectively by our President and Chief Executive Officer, who reports his findings to the organization and compensation committee. Historically, each executive has been evaluated on his contributions to the following areas:

- the improvement of processes and efficiency;
- the development of human and scientific capacity; and
- the development and management of stakeholders, including partners, collaborators, investigators, stockholders and licensees.

Each executive's contributions are evaluated on a scale of 0 to 3, with 0 meaning that the executive made no contribution, 1 meaning that the executive's contributions were below expectations, 2 meaning that the executive's contributions met expectations and 3 meaning that the executive's contributions exceeded expectations. The executive's scores in each of the categories for the particular year are totaled and the ratio of the executive's score to the maximum number of points that the executive could have earned across all categories is used to determine what portion of this element of the annual cash bonus that the executive will

earn. The organization and compensation committee reviews and has the authority to approve the evaluation prepared by our President and Chief Executive Officer or to adjust it in a manner that it sees fit. While this element of the annual cash bonus is inherently subjective in nature, we believe it is important to recognize the contributions made by our executives that do not appear in the operating plan, via objective individual goals or on our financial statements. These contributions may have an impact beyond the current fiscal year, and we believe that giving a partial weighting in the annual cash bonus calculation to these intangible contributions made by an executive is appropriate in light of our long-term goal of developing a motivated workforce and creating stockholder value.

The bonus percentages for each executive are set by the organization and compensation committee. The bonus percentages that are proposed by our organization and compensation committee are derived from peer group data that is adjusted to match the level of qualification and experience of the executive candidate, but are guided by our overarching "team-based" philosophy. Our organization and compensation committee believes that our executive officers should function as a team and that one way to foster a collaborative, team-based environment is to provide for each executive officer to have a similar bonus percentage.

Our organization and compensation committee has authority to, in its sole discretion, adjust the bonus percentage each year in connection with its review of the executive's performance and has authority to allow an executive to receive a bonus payment in excess of his or her annual cash bonus for exceptional performance. Further, our organization and compensation committee reviews the assessment of each executive's performance conducted by the organization and compensation committee with respect to the annual cash bonus and retains the authority, in its sole discretion, to modify the amount of the annual cash bonus above or below the amount recommended by the organization and compensation committee.

2010 bonuses

For 2010, Mr. Mulroy was eligible to receive an annual cash bonus of up to 50% of his 2010 base salary and each of Mr. Nielsen, Dr. Niyikiza, Mr. Sullivan and Mr. Stewart were eligible to receive annual cash bonuses of up to 40% of their 2010 base salaries. Ms. Evren was not eligible to receive a bonus for 2010 because her employment with us ended in January 2010. With the exception of Mr. Sullivan, the bonus percentages were not increased for our named executive officers in 2010. Mr. Sullivan's bonus percentage was increased by our organization and compensation committee from 30% to 40% in 2010 in connection with his promotion to Vice President of Finance in February 2010 and his assumption of the duties of our former Chief Financial Officer.

For 2010, the annual corporate objectives, which accounted for one-third of the annual cash bonus for each of our named executive officers, were as follows:

- launch a comprehensive MM-121 Phase 1/2 development program that integrates the development of a companion diagnostic with the development of MM-121;
- advance the clinical pipeline of novel network biology therapeutics;
- build and advance the network biology pipeline to establish two preclinical lead molecules; and

- secure additional funding through MM-121 milestones and business development initiatives.

The organization and compensation committee determined that we achieved each of the 2010 corporate objectives, other than securing additional funding through MM-121 milestones and business development initiatives. In making this determination, the organization and compensation committee considered all of the information available to it at the time and concluded that each executive officer should be receive 75% of the portion of the annual cash bonus related to the achievement of the annual corporate objectives.

For 2010, the individual goals for each of our named executive officers accounted for one-third of their annual cash bonus. The individual goals for our named executive officers are primarily related to the corporate goals for which they are most responsible and, to a lesser extent, individual development goals or department specific goals.

Mr. Mulroy's individual objectives for 2010 related to finalizing the 2010 and 2011 development plan and budget for MM-121 and initiating additional clinical trials of MM-121, securing additional business development and milestone funding, advancing our strategy of extending Network Biology into additional therapeutic fields and developing a future facilities plan. The organization and compensation committee determined that Mr. Mulroy achieved each of his individual objectives, other than securing additional business development and milestone funding. As a result, Mr. Mulroy was allocated 75% of the portion of his annual cash bonus related to the achievement of annual individual objectives.

Mr. Sullivan's individual objectives for 2010 related to completing the corporate record review and legal audit, securing federal and state biotechnology research tax credit funding, assessing and developing strategies to improve internal controls and completing the 2010 audit and reconfirming prior year audits. The organization and compensation committee determined that Mr. Sullivan achieved each of his individual objectives. As a result, Mr. Sullivan was allocated 100% of the portion of his annual cash bonus related to the achievement of annual individual objectives.

Dr. Nielsen's individual objectives for 2010 related to advancing our preclinical product candidates and advancing our plan to extend Network Biology into additional therapeutic fields. The organization and compensation committee determined that Dr. Nielsen achieved each of his individual objectives. As a result, Dr. Nielsen was allocated 100% of the portion of his annual cash bonus related to the achievement of annual individual objectives.

Dr. Niyikiza's individual objectives for 2010 related to initiating clinical trials of MM-121 and MM-111, establishing a clinical advisory group and finalizing clinical trial plans and budgets. The organization and compensation committee determined that Dr. Niyikiza achieved each of his individual objectives. As a result, Dr. Niyikiza was allocated 100% of the portion of his annual cash bonus related to the achievement of annual individual objectives. Dr. Niyikiza was initially assigned a 2010 individual performance objective of achieving the first human patient dosing with a particular product candidate in our pipeline. However, due to problems at the manufacturer of this product candidate, the organization and compensation committee determined that this individual objective was unable to be achieved through no fault of Dr. Niyikiza, moved the individual objective to 2011 and did not include it in determining Dr. Niyikiza's 2010 bonus payment.

Mr. Stewart's individual objectives for 2010 related to advancing our program of partnering company assets, expanding and protecting key intellectual property, implementing clinical-stage product teams and developing a physical infrastructure plan. The organization and compensation committee determined that Mr. Stewart achieved each of his individual objectives. As a result, Mr. Stewart allocated 100% of the portion of his annual cash bonus related to the achievement of annual individual objectives.

Our President and Chief Executive Officer conducted a thorough review of the third element of each executive officer's annual cash bonus, the general management contribution of each executive officer, and reported his findings, including his findings with respect to himself, to our organization and compensation committee. Our organization and compensation committee determined that the contributions made by Mr. Mulroy, Dr. Nielsen, Dr. Niyikiza and Mr. Stewart exceeded expectations for 2010 and that they were entitled to receive 100% of this portion of their annual cash bonus payment. Our organization and compensation committee determined that the contributions made by Mr. Sullivan met expectations for 2010 and that he was entitled to receive 67% of this portion of his annual cash bonus payment. It has been the practice of the organization and compensation committee to rate first year executives, in this case, Mr. Sullivan, as meeting, not exceeding, expectations.

The following table sets forth each named executive officer's annual cash bonus eligibility (both as a percentage of annual base salary and in actual dollars), the total bonus paid and the total bonus paid as a percentage of salary. As disclosed above, notwithstanding the annual cash bonus assessment performed by the organization and compensation committee for each executive officer, our organization and compensation committee retains full discretion to adjust each executive officer's annual cash bonus beyond the amount calculated. Based on our organization and compensation committee's assessment of Mr. Mulroy's contribution to our growth and development in 2010, our organization and compensation committee determined that Mr. Mulroy should receive an annual cash bonus in an amount equal to his full bonus percentage despite the results of the assessment performed by the organization and compensation committee. Further, as disclosed above, Ms. Evren was not eligible to and did not receive a cash bonus for 2010 because her employment with the company ended in January 2010.

Name	2010 Base salary	Annual bonus percentage range	Target cash bonus	Cash bonus paid for 2010	Actual bonus as % of salary
Robert J. Mulroy	$ 432,253	0-50%	$ 217,776	$ 217,776	50%
William A. Sullivan	$ 240,000	0-40%	$ 82,194	$ 76,800	32%
Ulrik B. Nielsen	$ 287,370	0-40%	$ 114,948	$ 105,596	37%
Clet M. Niyikiza	$ 329,892	0-40%	$ 131,957	$ 121,402	37%
Edward J. Stewart	$ 254,582	0-40%	$ 101,833	$ 93,548	37%

Equity incentive awards

Our equity award program is the primary vehicle for offering long-term incentives to our executives. While we do not currently have any equity ownership guidelines for our executives, we believe that equity grants provide our executives with a strong link to our long-term performance, create an ownership culture and help to align the interests of our executives and our stockholders. Because our executives profit from stock options only if our stock price

increases relative to the stock option's exercise price, we believe stock options provide meaningful incentives to our executives to achieve increases in the value of our stock over time. In addition, the vesting feature of our equity grants contributes to executive retention by providing an incentive to our executives to remain employed by us during the vesting period. Prior to this offering, our executives were eligible to participate in the 2008 stock incentive plan, as amended, or the 2008 plan, and the 1999 stock option plan as amended, or the 1999 plan. During 2010, all stock options were granted pursuant to the 2008 stock incentive plan. Following the closing of this offering, our employees and executives will be eligible to receive stock-based awards pursuant to the 2011 stock incentive plan, or the 2011 plan. Under the 2011 plan, executives will be eligible to receive grants of stock options, restricted stock, restricted stock units, stock appreciation rights and other stock-based equity awards at the discretion of our organization and compensation committee.

We use stock options to compensate our named executive officers both in the form of initial grants in connection with the commencement of employment and generally on an annual basis thereafter. Our organization and compensation committee may also make additional discretionary grants, typically in connection with the promotion of an employee, to reward an employee, for retention purposes or for other circumstances recommended by management. Typically, the stock options we grant to our executives vest quarterly over a three year period. Vesting and exercise rights cease shortly after termination of employment except in the case of death or disability. Prior to the exercise of an option, the holder has no rights as a stockholder with respect to the shares subject to such option, including voting rights or the right to receive dividends or dividend equivalents.

In determining the size of the annual stock option grants to our executives, our organization and compensation committee is guided by our overarching team-based philosophy. To help foster collaboration among our named executive officers, our organization and compensation committee has historically aimed to make equal annual grants of options to each executive officer. In determining the amount of the annual stock option grants, our organization and compensation committee considers recommendations developed by our compensation consultant, including information regarding comparative stock ownership and equity grants received by the executives in our peer group and our industry. In addition, our organization and compensation committee considers our corporate performance, the potential for enhancing the creation of value for our stockholders, the amount of equity previously awarded to the executives and the vesting of such awards.

We have historically granted stock options with exercise prices that are set at no less than the fair market value of shares of our common stock on the date of grant as determined by our organization and compensation committee with the assistance and recommendation of management, in good faith based on a number of objective and subjective factors, including contemplating valuations prepared by an external consultant. The exercise price of all stock options granted after the closing of this offering will be equal to the fair market value of shares of our common stock on the date of grant, which generally will be determined by reference to the closing market price of our common stock on the date of grant. Following this offering, we intend to grant equity awards annually.

2010 grants

In February 2010, as part of the annual performance evaluation of our named executive officers, our organization and compensation committee granted to each of Drs. Nielsen and Niyikiza an option to purchase 100,000 shares of our common stock. Each of these options vests quarterly over a three year period. The exercise price of each option grant is $2.12, the fair market value of our common stock on the date of grant as determined by our organization and compensation committee. Dr. Nielsen's grant was awarded in recognition of his promotion to Chief Scientific Officer. Dr. Niyikiza's grant was awarded in recognition of his assumption of additional responsibilities overseeing our clinical development organization.

In October 2010, our organization and compensation committee granted to Dr. Nielsen an option to purchase 60,000 shares of our common stock and to Mr. Stewart an option to purchase 50,000 shares of our common stock. Dr. Nielsen's option vests quarterly over a three year period and Mr. Stewart's option was fully vested as of the date of grant. The exercise price of each option grant is $2.69, the fair market value of our common stock on the date of grant as determined by our organization and compensation committee. Dr. Nielsen's grant was made in recognition of his development of certain intellectual property that formed the basis for creating our subsidiary, Silver Creek Pharmaceuticals, Inc. Mr. Stewart's grant was made in recognition of his assumption of a broader management role in his capacity as Senior Vice President of Business Development.

In December 2010, as part of our annual grant process, our organization and compensation committee granted to each of Dr. Nielsen, Dr. Niyikiza and Mr. Stewart an option to purchase 50,000 shares of our common stock and to Mr. Sullivan an option to purchase 150,000 shares of our common stock. Each of these options vests quarterly over a three year period. The exercise price of each option grant is $2.69, the fair market value of our common stock on the date of grant as determined by our organization and compensation committee. Consistent with our team-based approach, we intended to grant to each named executive officer an option to purchase 100,000 shares of our common stock, except that we planned to grant to Mr. Sullivan an option that would let him purchase an additional 50,000 shares of our common stock in connection with his promotion to Vice President of Finance in February 2010, which resulted in increased responsibilities for him as he assumed the duties of the Chief Financial Officer who departed in January 2010, and his later appointment as an executive officer. However, after establishing the amount of the grants, we determined that we did not have a sufficient number of authorized shares of common stock available for issuance under our 2008 plan for the grants. As a result, we made a full grant to Mr. Sullivan, partial grants to Dr. Nielsen, Dr. Niyikiza and Mr. Stewart and no grant to Mr. Mulroy. The balance of the annual grants have been made to our named executive officers during 2011, with the exception of Mr. Mulroy, who elected to forgo receipt of his 2010 grant in its entirety in order to increase the number of shares available for grants to our other employees and directors.

Benefits and other compensation

We believe that establishing competitive benefit packages for our employees is an important factor in attracting and retaining highly qualified personnel. We maintain broad-based benefits that are provided to all employees, including medical, dental, group life insurance, accidental death, dismemberment insurance, long and short term disability insurance, medical and dependent care flexible spending accounts, personal welfare reimbursement stipends and matching contributions in our 401(k) plan. All of our executives are eligible to participate in all

of our employee benefit plans, in each case on the same basis as other employees. Under our 401(k) plan, we are permitted to make discretionary contributions and matching contributions, subject to established limits and a vesting schedule. Currently, we match 50% of employee contributions up to a maximum contribution by us of 3% of the employee's salary. The match vests at 25% per year over four years. We also provide each employee, including our executives, with an annual $1,250 work welfare stipend that can be used to pay for services such as personal professional development, public transportation passes, gym memberships and medical insurance co-pays. Our executives are also entitled to supplemental long-term disability insurance coverage that is not available to our other employees. We provide a tax-gross up payment to our executives to compensate them for the additional tax cost of receiving this benefit. Consistent with our compensation philosophy, we intend to continue to maintain our current benefits for our named executive officers. The organization and compensation committee in its discretion may revise, amend or add to the named executive officer's benefits and perquisites if it deems it advisable.

In particular circumstances, we sometimes award cash signing bonuses when executives first join us. Such cash signing bonuses typically must be repaid in full if the executive voluntarily terminates employment with us prior to the first anniversary of the date of hire. Whether a signing bonus is paid and the amount of the bonus is determined on a case-by-case basis under the specific hiring circumstances. For example, we will consider paying signing bonuses to compensate for amounts forfeited by an executive upon terminating prior employment, to assist with relocation expenses or to create additional incentive for an executive to join our company in a position where there is high market demand.

Severance and change in control benefits

Pursuant to employment agreements we have entered into with our executives, our executives are entitled to specified benefits in the event of the termination of their employment under specified circumstances, including termination following a change in control of our company. Please refer to "—Employment agreements" for a more detailed discussion of these benefits. We have provided estimates of the value of the severance payments made and other benefits provided to executives under various termination circumstances, under the caption "—Potential payments upon termination or change in control" below.

We believe providing these benefits helps us compete for executive talent. After reviewing the practices of companies represented in the compensation peer group, we believe that our severance and change in control benefits are generally in line with severance packages offered to executives of the companies in our peer group.

We have structured our change in control benefits as "double trigger" benefits. In other words, the change in control does not itself trigger benefits. Rather, benefits are paid only if the employment of the executive is terminated during a specified period after the change in control. We believe a "double trigger" benefit maximizes stockholder value because it prevents an unintended windfall to executives in the event of a friendly change in control, while still providing them appropriate incentives to cooperate in negotiating any change in control in which they believe they may lose their jobs.

Risk considerations in our compensation program

Our organization and compensation committee has reviewed and evaluated the philosophy and standards on which our compensation plans have been developed and implemented across our company. It is our belief that our compensation programs do not encourage inappropriate actions or risk taking by our executive officers. We do not believe that any risks arising from our employee compensation policies and practices are reasonably likely to have a material adverse effect on our company. In addition, we do not believe that the mix and design of the components of our executive compensation program encourage management to assume excessive risks. We believe that our current business process and planning cycle fosters the behaviors and controls that would mitigate the potential for adverse risk caused by the action of our executives.

We believe that our current business process and planning cycle fosters the following behaviors and controls that mitigate the potential for adverse risk caused by the action of our executives:

- annual establishment of corporate and individual objectives for our performance-based cash bonus programs for our executive officers that are consistent with our annual operating and strategic plans, that are designed to achieve the proper risk/reward balance, and that should not require excessive risk taking to achieve;

- the mix between fixed and variable, annual and long-term and cash and equity compensation are designed to encourage strategies and actions that balance the company's short-term and long-term best interests; and

- stock option awards vest over a period of time, which we believe encourages executives to take a long-term view of our business.

Tax and accounting considerations

Section 162(m) of the Internal Revenue Code of 1986, as amended, which will become applicable to us upon the closing of this offering, subject to certain transition rules, generally disallows a tax deduction for compensation in excess of $1.0 million paid to our chief executive officer, our chief financial officer and our three other most highly paid executive officers (other than our chief executive officer and chief financial officer). Qualifying performance-based compensation is not subject to the deduction limitation if specified requirements are met. We intend to periodically review the potential consequences of Section 162(m) and we generally intend to structure the performance-based portion of our executive compensation, where feasible, to comply with exemptions in Section 162(m) so that the compensation will remain tax deductible to us. However, the organization and compensation committee may, in its judgment, authorize compensation payments that do not comply with the exemptions in Section 162(m) when it believes that such payments are appropriate to attract and retain executive talent and are in the best interests of our stockholders.

We account for equity compensation paid to our employees in accordance with FASB Accounting Standards Codification Topic 718, *Compensation—Stock Compensation*, or ASC 718, which requires us to measure and recognize compensation expense in our financial statements for all share-based payments based on an estimate of their fair value over the service period of the award. We record cash compensation as an expense at the time the obligation is accrued.

Summary compensation table

The following table sets forth the total compensation awarded to, earned by or paid to our named executive officers during 2010.

Name and principal position	Year	Salary ($)	Stock awards ($)	Option awards ($)(1)	Non-equity incentive plan compensation ($)(2)	All other compensation ($)(3)	Total ($)
Robert J. Mulroy(4) *President and Chief Executive Officer*	2010	432,253	—	—	217,776	12,892	662,921
William A. Sullivan(5) *Chief Financial Officer and Treasurer*	2010	205,485	—	260,714	76,800	5,496	548,495
Lisa A. Evren(6) *Former Chief Financial Officer*	2010	19,355	—	—	—	705	20,060
Ulrik B. Nielsen *Senior Vice President and Chief Scientific Officer*	2010	287,370	—	334,125	105,596	8,985	736,076
Clet M. Niyikiza *Executive Vice President of Development*	2010	329,892	—	230,852	121,402	2,184	684,330
Edward J. Stewart *Senior Vice President of Business Development*	2010	254,582	—	168,680	93,548	8,440	525,250

(1) The amounts in the "Option awards" column reflect the aggregate grant date fair value of stock options granted during the year computed in accordance with the provisions of ASC Topic 718, excluding the impact of estimated forfeitures related to service-based vesting conditions (which in our case were none). The assumptions that we used to calculate these amounts are discussed in Note 16 to our financial statements appearing at the end of this prospectus.

(2) The amounts in the "Non-equity incentive plan compensation" column represent awards to our named executive officers under our annual cash bonus program. Annual bonus compensation for 2010 was paid in 2011.

(3) Amounts represent the value of perquisites and other personal benefits, which are further detailed below.

Name	401(k) Match ($)	Group life insurance premium ($)	Tax gross-ups ($)(a)	Stipend ($)(b)	Total ($)
Robert J. Mulroy	3,493	8,951	448	—	12,892
William A. Sullivan	3,644	154	448	1,250	5,496
Lisa A. Evren	582	86	37	—	705
Ulrik B. Nielsen	7,112	210	448	1,215	8,985
Clet M. Niyikiza	—	486	448	1,250	2,184
Edward J. Stewart	5,070	2,922	448	—	8,440

(a) Represents the value of the tax gross-up payment provided to executives to compensate them for the additional tax cost of receiving supplemental long-term disability insurance coverage.

(b) Represents the value of the work welfare stipend, described above in "Benefits and other compensation" provided to the executive.

(4) Mr. Mulroy is also a member of our board of directors, but does not receive any additional compensation in his capacity as a director.

(5) Mr. Sullivan's salary was $170,969 as of January 1, 2010 and was increased to $240,000 as of July 1, 2010 in connection with his promotion to Vice President of Finance in February 2010 and his later appointment as an executive officer. Mr. Sullivan was promoted to Chief Financial Officer in May 2011.

(6) Ms. Evren's employment with us ended in January 2010.

Grants of plan-based awards in 2010

The following table sets forth information regarding grants of plan-based awards in the form of stock options to our named executive officers during 2010.

Name	Grant date	Estimated future payouts under non-equity incentive plan awards			All other option awards: number of securities underlying options (#)	Exercise or base price of option awards ($/share)	Fair market value on grant date ($/share)	Grant date fair value of option awards ($)(2)
		Threshold ($)	Target ($)(1)	Maximum ($)				
Robert J. Mulroy	3/17/2010	—	217,776	—	—	—	—	—
William A. Sullivan	3/17/2010	—	82,194	—	—	—	—	—
	12/22/2010	—	—	—	150,000	2.69	2.69	260,714
Lisa A. Evren	—	—	—	—	—	—	—	—
Ulrik B. Nielsen	3/17/2010	—	114,948	—	—	—	—	—
	1/31/2010	—	—	—	100,000	2.12	2.12	143,947
	10/15/2010	—	—	—	60,000	2.69	2.69	103,274
	12/22/2010	—	—	—	50,000	2.69	2.69	86,905
Clet M. Niyikiza	3/17/2010	—	131,957	—	—	—	—	—
	1/31/2010	—	—	—	100,000	2.12	2.12	143,947
	12/22/2010	—	—	—	50,000	2.69	2.69	86,905
Edward J. Stewart	3/17/2010	—	101,833	—	—	—	—	—
	10/15/2010	—	—	—	50,000	2.69	2.69	81,775
	12/22/2010	—	—	—	50,000	2.69	2.69	86,905

(1) The target amounts in the "Estimated future payouts under non-equity incentive plan awards" column represent the amount determined by our organization and compensation committee as the target annual cash bonus payable to each executive officer for 2010. On March 17, 2010, our organization and compensation committee established the annual cash bonus targets for 2010, as a percentage of annual base salary, for each executive officer.

(2) The amounts in the "Grant date fair value of option awards" column reflect the grant date fair value of option awards granted in 2010 calculated in accordance with ASC 718.

Outstanding equity awards at December 31, 2010

The following table sets forth information regarding outstanding stock options held by our named executive officers as of December 31, 2010.

Name	Number of securities underlying unexercised options exercisable (#)	Number of securities underlying unexercised options unexercisable (#)	Option exercise price ($/share)	Option expiration date
Robert J. Mulroy	75,000	—	2.19	8/2/2012
	50,000	—	2.19	5/8/2013
	158,048	—	1.25	8/30/2014
	141,952	—	1.25	8/30/2014
	25,837	—	1.25	8/30/2018
	224,163	—	1.25	8/30/2018
	43,247	—	1.71	8/3/2015
	456,753	—	1.71	8/3/2015
	52,985	—	2.47	1/23/2017
	97,015	—	2.47	1/23/2017
	26,689	—	2.59	10/4/2017
	248,311	—	2.59	10/4/2017
	322,917	452,083(2)	2.12	11/4/2019
William A. Sullivan	75,000	—	2.12	12/4/2017
	15,125	1,375(3)	2.12	5/4/2018
	26,250	8,750(4)	1.81	9/21/2018
	25,000	35,000(2)	2.12	11/4/2019
	—	150,000(5)	2.69	12/21/2020
Lisa A. Evren(1)	—	—	—	—
Ulrik B. Nielsen	19,035	—	0.3152	7/10/2011
	4,368	—	2.19	8/2/2012
	10,483	—	2.19	5/8/2013
	150,000	—	1.25	8/30/2014
	82,977	—	1.71	8/3/2015
	17,023	—	1.71	8/3/2015
	48,175	—	2.47	10/3/2016
	26,825	—	2.47	10/3/2016
	53,378	—	2.59	10/4/2017
	146,622	—	2.59	10/4/2017
	187,500	62,500(6)	1.81	9/21/2018
	75,000	105,000(2)	2.12	11/4/2019
	25,000	75,000(7)	2.12	1/31/2020
	5,000	55,000(5)	2.69	10/14/2020
	—	50,000(5)	2.69	12/21/2020
Clet M. Niyikiza	66,667	133,333(8)	2.12	11/4/2019
	25,000	75,000(7)	2.12	1/31/2020
	—	50,000(5)	2.69	12/21/2020
Edward J. Stewart	16,385	—	2.19	5/3/2012
	5,000	—	2.19	5/8/2013
	40,000	—	1.25	8/30/2014
	30,000	—	1.71	8/3/2015
	30,000	—	2.47	8/1/2016
	50,000	—	2.59	10/4/2017
	75,000	25,000(6)	1.81	9/21/2018
	83,333	116,667(2)	2.12	11/4/2019
	50,000	—	2.69	10/14/2020
	—	50,000(5)	2.69	12/21/2020

(1) Ms. Evren's employment with us ended in January 2010, and her stock options terminated during 2010 without being exercised.

(2) The unvested shares under this option are scheduled to vest in approximately equal quarterly installments through August 1, 2012.

(3) The unvested shares under this option are scheduled to vest in approximately equal quarterly installments through May 5, 2011.

(4) The unvested shares under this option are scheduled to vest in approximately equal quarterly installments through October 1, 2011.

(5) The unvested shares under this option are scheduled to vest in approximately equal quarterly installments through July 1, 2013.

(6) The unvested shares under this option are scheduled to vest in approximately equal quarterly installments through November 1, 2011.

(7) The unvested shares under this option are scheduled to vest in approximately equal quarterly installments through January 1, 2013.

(8) The unvested shares under this option are scheduled to vest in approximately equal quarterly installments through November 1, 2012.

Option exercises and stock vested

None of our named executive officers exercised any stock options or held any restricted stock that vested during 2010.

Pension benefits

We do not maintain any defined benefit pension plans.

Nonqualified deferred compensation

We do not maintain any nonqualified deferred compensation plans.

Stock option and other employee benefit plans

The three equity incentive plans described in this section are the 2011 plan, the 2008 plan and the 1999 plan. Prior to this offering, we granted awards to eligible participants under the 1999 plan and the 2008 plan. Following the closing of this offering, we expect to grant awards to eligible participants under the 2011 plan.

2011 stock incentive plan

We expect our board of directors to adopt and our stockholders to approve the 2011 plan, which will become effective immediately prior to the closing of this offering. The 2011 plan provides for the grant of incentive stock options, non-statutory stock options, stock appreciation rights, restricted stock awards, restricted stock units and other stock-based awards. Upon effectiveness of the plan, the number of shares of our common stock that will be reserved for issuance under the 2011 plan will be the sum of shares plus (1) the number of shares of our common stock then available for issuance under the 1999 plan and the 2008 plan, both described below, up to shares, (2) the number of shares of our common stock subject to outstanding awards under the 1999 plan and the 2008 plan, both described below, that expire, terminate or are otherwise surrendered, cancelled, forfeited or repurchased by us at their original issuance price pursuant to a contractual repurchase right, and (3) an annual increase, to be added on the first day of each fiscal year beginning in fiscal year 2013 and each subsequent anniversary until the expiration of the 2011 plan, equal to the lowest of (a) shares of our common stock, (b) % of the number of shares of our common stock outstanding on the first day of the fiscal year and (c) an amount determined by our board of directors.

Our employees, officers, directors, consultants and advisors are eligible to receive awards under the 2011 plan. However, incentive stock options may only be granted to our employees. The maximum number of shares of our common stock with respect to which awards may be granted to any participant under the 2011 plan is per calendar year. For purposes of this limit on the maximum number of shares that may be awarded to any participant, the combination of an option in tandem with a stock appreciation right will be treated as a single award.

Pursuant to the terms of the 2011 plan, our board of directors administers the plan and, subject to any limitations in the plan, selects the recipients of awards and determines:

- the number of shares of our common stock covered by options and the dates upon which the options become exercisable;
- the type of options to be granted;
- the duration of options, which may not be in excess of ten years;
- the exercise price of options, which may not be less than the fair market value of our common stock on the date of grant of the options; and
- the number of shares of our common stock subject to any stock appreciation rights, restricted stock awards, restricted stock units or other stock-based awards and the terms and conditions of such awards, including conditions for repurchase, issue price and repurchase price.

If our board of directors delegates authority to an executive officer to grant awards under the 2011 plan, the executive officer has the power to make awards to all of our employees, except executive officers. Our board of directors will fix the terms of the awards to be granted by such executive officer, including the exercise price of such awards, and the maximum number of shares subject to awards that such executive officer may make.

Upon a merger or other reorganization event, our board of directors may, in its sole discretion, take any one or more of the following actions pursuant to the 2011 plan as to some or all outstanding awards other than restricted stock:

- provide that all outstanding awards shall be assumed, or substantially equivalent awards shall be substituted, by the acquiring or successor corporation (or an affiliate thereof);
- upon written notice to a participant, provide that all of the participant's unexercised awards will terminate immediately prior to the consummation of such reorganization event unless exercised by the participant;
- provide that outstanding awards shall become exercisable, realizable or deliverable, or restrictions applicable to an award shall lapse, in whole or in part, prior to or upon such reorganization event;
- in the event of a reorganization event pursuant to which holders of shares of our common stock will receive a cash payment for each share surrendered in the reorganization event, make or provide for a cash payment to the participants with respect to each award held by a participant equal to (1) the number of shares of common stock subject to the vested portion of the award (after giving effect to any acceleration of vesting that occurs upon or

immediately prior to such reorganization event) multiplied by (2) the excess, if any, of the cash payment for each share surrendered in the reorganization event over the exercise, measurement or purchase price of such award and any applicable tax withholdings, in exchange for the termination of such award; and

- provide that, in connection with a liquidation or dissolution, awards shall convert into the right to receive liquidation proceeds.

In the case of certain restricted stock units, no assumption or substitution is permitted, and the restricted stock units will instead be settled in accordance with the terms of the applicable restricted stock unit agreement.

Upon the occurrence of a reorganization event other than a liquidation or dissolution, the repurchase and other rights with respect to outstanding restricted stock will continue for the benefit of the successor company and will, unless the board of directors may otherwise determine, apply to the cash, securities or other property into which shares of our common stock are converted or exchanged pursuant to the reorganization event. Upon the occurrence of a reorganization event involving a liquidation or dissolution, all restrictions and conditions on each outstanding restricted stock award will automatically be deemed terminated or satisfied, unless otherwise provided in the agreement evidencing the restricted stock award.

At any time, our board of directors may, in its sole discretion, provide that any award under the 2011 plan will become immediately exercisable in full or in part, free of some or all restrictions or conditions, or otherwise realizable in full or in part.

No award may be granted under the 2011 plan on or after , 2021. Our board of directors may amend, suspend or terminate the 2011 plan at any time, except that stockholder approval will be required to comply with applicable law or stock market requirements.

2008 stock incentive plan

Our 2008 plan was adopted by our board of directors in April 2008 and approved by our stockholders in May 2008. Our 2008 plan was amended in October 2010 and April 2011. Upon the closing of this offering and the approval of the 2011 plan, we do not expect to grant any additional awards under the 2008 plan.

The 2008 plan provides for the grant of incentive stock options, non-statutory stock options, restricted stock awards, restricted stock units and other stock-based awards. The number of shares of our common stock that are reserved for issuance under the 2008 plan is the sum of 7,200,000 shares plus such additional number of shares of our common stock as is equal to the sum of (1) the number of shares of our common stock reserved for issuance under the 1999 plan, described below, that remained available for grant upon the effectiveness of the 2008 plan and (2) the number of shares of our common stock subject to awards granted under the 1999 plan that expire, terminate or are otherwise surrendered, canceled, forfeited or repurchased by us at their original issuance price pursuant to a contractual repurchase right, in the aggregate up to 19,592,788 shares.

Our employees, officers, directors, consultants and advisors are eligible to receive awards under the 2008 plan. However, incentive stock options may only be granted to our employees.

Upon a merger or other reorganization event, our board of directors may, in its sole discretion, take any one or more of the following actions pursuant to the 2008 plan as to some or all outstanding awards other than restricted stock:

- provide that all outstanding awards shall be assumed, or substantially equivalent awards shall be substituted, by the acquiring or successor corporation (or an affiliate thereof);
- upon written notice to a participant, provide that all of the participant's unexercised awards will terminate immediately prior to the consummation of such reorganization event unless exercised by the participant;
- provide that outstanding awards shall become exercisable, realizable or deliverable, or restrictions applicable to an award shall lapse, in whole or in part, prior to or upon such reorganization event;
- in the event of a reorganization event pursuant to which holders of shares of our common stock will receive a cash payment for each share surrendered in the reorganization event, make or provide for a cash payment to the participants with respect to each award held by a participant equal to the excess, if any, of the cash payment for each share surrendered in the reorganization event over the exercise price of such award and any applicable tax withholdings, in exchange for the termination of such award; and
- provide that, in connection with a liquidation or dissolution, awards shall convert into the right to receive liquidation proceeds.

Upon the occurrence of a reorganization event other than a liquidation or dissolution, the repurchase and other rights with respect to outstanding restricted stock will continue for the benefit of the successor company and will, unless the board of directors may otherwise determine, apply to the cash, securities or other property into which shares of our common stock are converted or exchanged pursuant to the reorganization event. Upon the occurrence of a reorganization event involving a liquidation or dissolution, all restrictions and conditions on each outstanding restricted stock award will automatically be deemed terminated or satisfied, unless otherwise provided in the agreement evidencing the restricted stock award.

At any time, our board of directors may, in its sole discretion, provide that any award under the 2008 plan will become immediately exercisable in full or in part, free of some or all restrictions or conditions, or otherwise realizable in full or in part.

As of May 31, 2011, there were options to purchase an aggregate of 11,009,415 shares of common stock outstanding under the 2008 plan at a weighted average exercise price of $2.77 per share and an aggregate of 10,188 shares of common stock issued upon the exercise of options granted under the 2008 plan. If the 2011 plan is approved by our stockholders, we will grant no further stock options or other awards under the 2008 plan. However, any shares of common stock reserved for issuance under the 2008 plan that remain available for issuance and any shares of common stock subject to awards under the 2008 plan that expire, terminate, or are otherwise surrendered, canceled, forfeited or repurchased without having been fully exercised or resulting in any common stock being issued shall be available for grant under the 2011 plan up to a specified number of shares.

1999 stock option plan

Our 1999 plan was adopted by our board of directors and approved by our stockholders in May 1999. Our 1999 plan was amended in March 2000, December 2001, December 2003, March 2006 and October 2007. A maximum of 12,600,000 shares of common stock was authorized for issuance under the 1999 plan.

The 1999 plan provides for the grant of incentive stock options and non-statutory stock options. Our officers, employees and consultants were eligible to receive awards under the 1999 plan. However, incentive stock options were only granted to our employees.

In the event of a consolidation or merger, the sale or exchange of all or substantially all of our assets or a reorganization or liquidation, each holder of an option will be entitled to receive, upon exercise of such option, the same shares, securities or property as he would have been entitled to receive upon the occurrence of such exercise if the holder had exercised his option prior to such transaction; provided, however, that in lieu of the foregoing, our board of directors may, in its sole discretion, take any one or more of the following actions pursuant to the 1999 Plan as to some or all outstanding awards:

- upon written notice to a participant, provide that all of the participant's unexercised options will terminate on a date not less than 20 days after the date of such notice unless exercised by the participant; and

- in connection with such written notice to a participant, provide for the acceleration or waiver of any deferred exercise period.

As of May 31, 2011, there were options to purchase an aggregate of 6,747,579 shares of common stock outstanding under the 1999 plan at a weighted average exercise price of $1.98 per share and an aggregate of 1,111,247 shares of common stock issued upon the exercise of options granted under the 1999 plan. After the effective date of the 2008 plan, we granted no additional awards under the 1999 plan and any shares of common stock reserved for issuance under the 1999 plan that remained then available for issuance were available for issuance under the 2008 plan up to a specified number of shares. Any shares of common stock subject to awards under the 1999 plan that expire, terminate, or are otherwise surrendered, canceled, forfeited or repurchased without having been fully exercised or resulting in any common stock being issued will be available for issuance under the 2011 plan, if approved by our stockholders, or into the 2008 plan if the 2011 plan is not approved by our stockholders, up to a specified number of shares.

401(k) retirement plan

We maintain a defined contribution employee retirement plan for our employees. Our 401(k) retirement plan, or 401(k) plan, is intended to qualify as a tax-qualified plan under Section 401 of the Internal Revenue Code so that contributions to our 401(k) plan, and income earned on such contributions, are not taxable to participants until withdrawn or distributed from the 401(k) plan. Our 401(k) plan provides that each participant may contribute up to 100% of his or her pre-tax compensation, up to a statutory limit, which is $16,500 for 2011. Participants who are at least 50 years old can also make "catch-up" contributions, which in 2011 may be up to an additional $5,500 above the statutory limit. Under our 401(k) plan, each employee is fully vested in his or her deferred salary contributions. Employee contributions are held and invested by the plan's trustee. Our 401(k) plan also permits us to make discretionary contributions and

matching contributions, subject to established limits and a vesting schedule. For 2010, we made an employer matching contribution equal to 50% of employee deferral contributions up to a maximum deferral rate of 3% of compensation.

Director compensation

Compensation for 2010

The following table sets forth information regarding the total compensation awarded to, earned by or paid to each of our current non-employee directors during the year ended December 31, 2010 for their service on our board of directors. The compensation amounts presented in the table below are historical and are not indicative of the amounts we may pay our directors in the future. Robert J. Mulroy, our Chief Executive Officer, has not received and will not receive any additional compensation for his services as a director. The compensation that we pay to Mr. Mulroy is discussed under "Executive Compensation" above.

Name	Fees earned or paid in cash ($)(1)	Option awards ($)(2)	Other compensation ($)(3)	Total ($)
Gary L. Crocker	62,500	—	—	62,500
James van B. Dresser	25,500	40,888	—	66,388
Gordon J. Fehr	27,750	—	—	27,750
Robert C. Gay, Ph.D.	15,250	—	—	15,250
Peter C. Lewis(4)	2,500	241,692	—	244,192
Walter M. Lovenberg, Ph.D.	33,750	—	—	33,750
Sarah E. Nash	26,000	—	—	26,000
Michael E. Porter, Ph.D.(5)	—	98,130	34,349	132,479
Anthony J. Sinskey, Sc.D.	24,750	—	—	24,750

(1) Fees earned or paid in cash consist of:

- for Mr. Crocker, $37,000 for serving as chairman of the board, $4,500 for attending board meetings and $21,000 for attending committee meetings;
- for Mr. van B. Dresser, $12,000 as a retainer for board service, $3,750 for attending board meetings and $9,750 for attending committee meetings;
- for Mr. Fehr, $12,000 as a retainer for board service, $3,750 for attending board meetings and $12,000 for attending committee meetings;
- for Dr. Gay, $12,000 as a retainer for board service, $750 for attending board meetings and $2,500 for attending committee meetings;
- for Mr. Lewis, who resigned from our board on January 27, 2010, $1,000 as a retainer for the pro-rated period of his board service for 2010 and $1,500 for attending committee meetings;
- for Dr. Lovenberg, $12,000 as a retainer for board service, $3,750 for attending board meetings and $18,000 for attending committee meetings;
- for Ms. Nash, $12,000 as a retainer for board service, $3,750 for attending board meetings and $10,250 for attending committee meetings; and
- for Dr. Sinskey, $12,000 as a retainer, $3,000 for attending board meetings and $9,750 for attending committee meetings.

(2) The amounts in the "Option awards" column reflect the aggregate grant date fair value of stock options granted during the year to directors for their service as directors computed in accordance with the provisions of ASC 718, excluding the impact of estimated forfeitures related to service-based vesting conditions (which in our case were none). The assumptions that we used to calculate these amounts are discussed in Note 16 to our financial statements appearing at the end of this prospectus.
As of December 31, 2010, the aggregate number of shares of our common stock subject to each non-employee director's outstanding option awards was as follows: Mr. Crocker 290,000; Mr. Dresser 215,462; Mr. Fehr 185,462; Dr. Gay 100,000; Mr. Lewis 134,558; Dr. Lovenberg 185,462; Ms. Nash 140,000; Dr. Sinskey 185,462; and Dr. Porter 120,000.

(3) In October 2010, our organization and compensation committee awarded a stock option for 25,000 shares of our common stock to Dr. Porter as compensation for his services as a consultant to the company. The amount of Dr. Porter's compensation reflects the aggregate grant date fair value of the stock option computed in accordance with the provisions of ASC Topic 718, excluding the impact of estimated forfeitures related to service-based vesting conditions. The assumptions that we used to calculate these amounts are discussed in Note 16 to our financial statements appearing at the end of this prospectus.

(4) In connection with the transactions described under "Transactions with related persons—Wharton transactions," in August 2010, we granted to Mr. Lewis, in respect of his board service, an option to purchase 20,000 shares of our common stock (with a grant date fair value computed in accordance with the provisions of ASC 718 of $34,796) and we extended the exercise period of all the options held by Mr. Lewis so that the ability to exercise each such option expires 10 years after its original date of grant (to which we assigned an incremental fair value as a result of the modification in accordance with ASC 718 of $206,896).

(5) Dr. Porter became a member of our board in December 2010.

Director compensation arrangements

For 2010, each non-employee director, other than the chairman of the board, received an annual retainer for board service of $12,000. The chairman of the board received an annual retainer for board service of $37,000. Our non-employee directors were paid an additional $1,500 for each board meeting that they attended in person and $750 for each board meeting that they attended by telephone, except that the chairman of the board of directors received $1,000 for each meeting he attended by telephone. In addition, the members of each of our board committees received a fee of $750 for each committee meeting that they attended. The chairs of each of our board committees each received a fee of $1,000 for each meeting of such committee that they attended. Upon joining our board, non-employee directors received an initial stock option grant to purchase 60,000 shares of our common stock. For 2010, non-employee directors, other than the chairman of the board, were targeted to receive an annual stock option grant with a grant date fair value of approximately $57,500. The chairman of the board was targeted to receive an annual stock option grant with a grant date fair value of approximately $71,875. However, these annual awards were not granted during 2010 because we did not have a sufficient number of shares of common stock available for grants to be made under the 2008 Plan. We instead made these grants on May 3, 2011.

For 2011, each non-employee director, other than the chairman of the board, receives an annual retainer for board service of $25,000. The chairman of the board receives an annual retainer for board service of $38,000. Our non-employee directors are paid an additional $2,000 for each board meeting that they attend. In addition, the members of each of our four board committees receive a fee for each committee meeting that they attend. The chairs of each of our four board committees each receive an additional fee for each meeting of such committee that they attend. Upon joining our board, non-employee directors currently receive an initial stock option grant to purchase 60,000 shares of our common stock. Non-employee directors, other than the chairman of the board, are also currently targeted to receive, on an annual basis, an annual stock option grant with a grant date fair value of approximately $90,500. The chairman of our board is targeted to receive, on an annual basis, an annual stock option grant with a grant date fair value of approximately $113,125.

Effective upon the closing of this offering, our non-employee directors will be compensated for their services to the board as follows:

- an annual retainer for board service of $25,000 ($47,500 for the chairman of the board);
- a fee of $2,000 for each meeting of the board that each non-employee director attends;

- an annual stock option grant with a grant date fair value of approximately $90,500 (approximately $113,125 for the chairman of the board);
- for members of the audit committee, a fee of $1,700 per meeting of the audit committee that each non-employee director attends ($3,000 per meeting for the chair);
- for members of the organization and compensation committee, a fee of $1,000 per meeting of the organization and compensation committee that each non-employee director attends ($2,500 per meeting for the chair);
- for members of the corporate governance and nominating committee, a fee of $750 per meeting of the corporate governance and nominating committee that each non-employee director attends ($1,000 per meeting for the chair); and
- for members of the executive committee, a fee of $1,000 per meeting of the executive committee that each non-employee director attends ($1,500 per meeting for the chair).

In addition, we have reimbursed, and will continue to reimburse, our non-employee directors for their travel, lodging and other reasonable expenses incurred in attending meetings of our board and committees of our board.

Limitation of liability and indemnification

Our certificate of incorporation, which will become effective upon the closing of this offering, limits the personal liability of directors for breach of fiduciary duty to the maximum extent permitted by the Delaware General Corporation Law and provides that no director will have personal liability to us or to our stockholders for monetary damages for breach of fiduciary duty or other duty as a director. However, these provisions do not eliminate or limit the liability of any of our directors:

- for any breach of the director's duty of loyalty to us or our stockholders;
- for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law;
- for voting or assenting to unlawful payments of dividends, stock repurchases or other distributions; or
- for any transaction from which the director derived an improper personal benefit.

Any amendment to or repeal of these provisions will not eliminate or reduce the effect of these provisions in respect of any act, omission or claim that occurred or arose prior to such amendment or repeal. If the Delaware General Corporation Law is amended to provide for further limitations on the personal liability of directors of corporations, then the personal liability of our directors will be further limited to the greatest extent permitted by the Delaware General Corporation Law.

In addition, our certificate of incorporation, which will become effective upon the closing of this offering, provides that we must indemnify our directors and officers and we must advance expenses, including attorneys' fees, to our directors and officers in connection with legal proceedings, subject to very limited exceptions.

We maintain a general liability insurance policy that covers certain liabilities of our directors and officers arising out of claims based on acts or omissions in their capacities as directors or officers. In addition, we have entered into indemnification agreements with certain of our directors, and we intend to enter into indemnification agreements with all of our directors and executive officers. These indemnification agreements may require us, among other things, to indemnify each such director for some expenses, including attorneys' fees, judgments, fines and settlement amounts incurred by him in any action or proceeding arising out of his service as one of our directors.

Certain of our non-employee directors may, through their relationships with their employers, be insured and/or indemnified against certain liabilities incurred in their capacity as members of our board of directors.

Insofar as indemnification for liabilities arising under the Securities Act of 1933, as amended, or the Securities Act, may be permitted to directors, executive officers or persons controlling us, in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

Rule 10b5-1 plans

Our directors and executive officers may adopt written plans, known as Rule 10b5-1 plans, in which they will contract with a broker to buy or sell shares of our common stock on a periodic basis based upon a pre-set plan or formula. Under a Rule 10b5-1 plan, a broker executes trades pursuant to parameters established by the director or officer when entering into the plan, without further direction from the director or officer. The director or officer may amend or terminate the plan in some circumstances. Our directors and executive officers may also buy or sell additional shares outside of a Rule 10b5-1 plan when they are not in possession of material, nonpublic information.

Transactions with related persons

Since January 1, 2008, we have engaged in the following transactions with our directors, executive officers and holders of more than 5% of our voting securities, and affiliates or immediate family members of our directors, executive officers and holders of more than 5% of our voting securities. We believe that all of these transactions were on terms as favorable as could have been obtained from unrelated third parties.

Series G convertible preferred stock financing

In April 2011, we issued and sold an aggregate of 11,000,000 shares of our series G convertible preferred stock at a price per share of $7.00 for an aggregate purchase price of $77,000,000. The following table sets forth the number of shares of our series G convertible preferred stock that we issued to our directors, executive officers and 5% stockholders and their affiliates and immediate family members.

Name	Shares of series G convertible preferred stock
5% Stockholders:	
Fidelity Investments(1)	5,524,135
Fred Alger Management, Inc.(2)	1,428,570
Directors and executive officers:	
Robert J. Mulroy(3)	82,855
Gary Crocker(4)	483,270
Sarah E. Nash(5)	32,000
Michael E. Porter	28,570

(1) Consists of (i) 1,428,572 shares of series G convertible preferred stock held by Ball & Co. f/b/o Fidelity Mt. Vernon Street Trust: Fidelity Growth Company Fund, (ii) 2,142,858 shares of series G convertible preferred stock held by Ball & Co. f/b/o Fidelity Securities Fund: Fidelity Blue Chip Growth Fund, (iii) 380,800 shares of series G convertible preferred stock held by Ball & Co. f/b/o Fidelity Securities Fund: Fidelity Series Small Cap Opportunities Fund, (iv) 80,373 shares of series G convertible preferred stock held by M Gardiner & Co. f/b/o Fidelity Advisor Series VII: Fidelity Advisor Health Care Fund, (v) 123,883 shares of series G convertible preferred stock held by M Gardiner & Co. f/b/o Fidelity Central Investment Portfolios LLC: Fidelity Health Care Central Fund, (vi) 14,977 shares of series G convertible preferred stock held by M Gardiner & Co. f/b/o Variable Insurance Products Fund IV: Health Care Portfolio, (vii) 391,134 shares of series G convertible preferred stock held by Mag & Co. f/b/o Fidelity Capital Trust: Fidelity Stock Selector Small Cap Fund, (viii) 350,000 shares of series G convertible preferred stock held by Mag & Co. f/b/o Fidelity Select Portfolios: Health Care Portfolio and (ix) 611,538 shares of series G convertible preferred stock held by Rowwater & Co. f/b/o Fidelity Destiny Portfolios: Fidelity Advisor Capital Development Fund.

(2) Consists of (i) 396,775 shares of series G convertible preferred stock held by Alger Capital Appreciation Fund, (ii) 496,510 shares of series G convertible preferred stock held by Alger Capital Appreciation Institutional Fund, (iii) 129,055 shares of series G convertible preferred stock held by Alger Capital Appreciation Portfolio and (iv) 406,230 shares of series G convertible preferred stock held by Alger Spectra Fund. Fred Alger Management, Inc. is the investment advisor of each of the above listed funds and, as such, has sole voting and sole dispositive control over the securities owned by such funds.

(3) Consists of 4,285 shares of series G convertible preferred stock held by Mr. Mulroy's brother, Richard D. Mulroy, Jr., 61,428 shares of series G convertible preferred stock held by Mr. Mulroy's brother, William F. Mulroy, and 17,142 shares of series G convertible preferred stock held by the Mulroy family irrevocable trust, of which Mr. Mulroy's brother, Richard D. Mulroy, Jr. is a trustee, each of whom is deemed to be a person related to us.

(4) Consists of 313,266 shares of series G convertible preferred stock held by Mr. Crocker jointly with his wife, Ann Crocker. In addition, Mr. and Mrs. Crocker, certain members of Mr. Crocker's family, certain trusts established for members of Mr. Crocker's family and certain entities controlled by Mr. Crocker or members of his family are parties to a Shareholder Voting Agreement, dated December 20, 2010, or the Crocker voting agreement, pursuant to which the parties to the agreement have agreed to vote his, her or its shares as directed by Crocker Ventures, LLC. Mr. Crocker is the President, Manager and chairman of Crocker Ventures, LLC and in connection therewith shares voting control over all of the shares subject to the Shareholder Voting Agreement. As a result, in addition to the shares of series G convertible preferred stock held by Mr. and Mrs. Crocker jointly, the 170,004 shares of series G convertible preferred stock held by the parties to the Crocker voting agreement are deemed to be shares held by a person related to us.

(5) Consists of 25,000 shares of series G convertible preferred stock held by Ms. Nash. Ms. Nash's husband, Michael Sylvester, holds 7,000 shares of series G convertible preferred stock. Mr. Sylvester is deemed to be a person related to us.

Series F convertible preferred stock financing and exchange offer

Between November 2007 and April 2008, we agreed to issue an aggregate of 11,775,995 shares of our series F convertible preferred stock at a price per share of $5.10 for an aggregate purchase price of $60,057,575. The following table sets forth the number of shares of our series F convertible preferred stock that we agreed to issue to our directors and 5% stockholders and their affiliates and immediate family members.

Name	Shares of series F convertible preferred stock
5% Stockholders:	
CSFB Next Fund, Inc.	1,960,784
TPG-Axon Partners(1)	1,960,783
Directors:	
Gary Crocker(2)	655,000
Sarah E. Nash(3)	226,665
Michael E. Porter	33,000
James van B. Dresser	4,901

(1) Consists of 1,313,725 shares of series F convertible preferred stock held by TPG-Axon International, L.P. and 647,058 shares of series F convertible preferred stock held by TPG-Axon Partners, LP.

(2) Consists of 41,900 shares of series F convertible preferred stock held by Mr. Crocker jointly with his wife, Ann Crocker. In addition, Mr. and Mrs. Crocker, certain members of Mr. Crocker's family, certain trusts established for members of Mr. Crocker's family and certain entities controlled by Mr. Crocker or members of his family are parties to a Shareholder Voting Agreement, dated December 20, 2010, or the Crocker voting agreement, pursuant to which the parties to the agreement have agreed to vote his, her or its shares as directed by Crocker Ventures, LLC. Mr. Crocker is the President, Manager and Chairman of Crocker Ventures, LLC and in connection therewith shares voting control over all of the shares subject to the Shareholder Voting Agreement. As a result, in addition to the shares of series F convertible preferred stock held by Mr. and Mrs. Crocker jointly, the 613,100 shares of series F convertible preferred stock held by the parties to the Crocker voting agreement are deemed to be shares held by persons related to us.

(3) Consists of 136,058 shares of series F convertible preferred stock held by Ms. Nash. Ms. Nash is also the trustee of the Sarah E. Nash 2009 Grantor Retained Annuity Trust and, as such, has voting and investment control over, and may be deemed the beneficial owner of, 71,000 shares of series F convertible preferred stock held by the Sarah E. Nash 2009 Grantor Retained Annuity Trust. Ms. Nash's husband, Michael Sylvester, holds 19,607 shares of series F convertible preferred stock. Mr. Sylvester is deemed to be a person related to us.

In July 2010, in connection with a review of our corporate records, we determined that we may not have obtained all of the required stockholder approvals to amend our articles of organization to authorize the shares of series F convertible preferred stock that we agreed to issue in 2007 and 2008. As a result, in October 2010, we conducted an exchange offer in which we provided investors to whom we had agreed to issue and sell shares of series F convertible preferred stock in 2007 and 2008 with the opportunity to acquire shares of properly authorized series F convertible preferred stock. All of the holders of shares of series F convertible preferred stock accepted our offer and received new, properly authorized shares of series F convertible preferred stock. Each such holder received a sub-series of the properly authorized series F convertible preferred stock that is intended to provide the investor with the economic benefit of the accrued dividends to which the investor would be entitled had the properly authorized shares of series F convertible preferred stock been issued on the dates that we originally agreed to do so in 2007 and 2008. In the exchange offer, we issued to our directors, executive officers and 5% stockholders and their affiliates the same number of shares of properly authorized series F convertible preferred stock as we had agreed to issue and sell to such holders in the series F financing in 2007 and 2008, which amounts are noted in the table above.

Wharton transactions

In June and August 2010, we entered into various agreements with certain individuals and entities associated with Wharton Equity Partners, collectively referred to as Wharton, which at that time owned more than 5% of the outstanding shares of our capital stock. One of our directors at that time, Peter Lewis, is a founder and principal of Wharton Equity Partners. Also at that time, David Eisenberg, the Chief Executive Officer of Wharton Equity Partners, had the right to observe the meetings of our board.

We entered into these agreements in connection with the sale by Wharton of up to all of the shares of our capital stock held by them to purchasers unaffiliated with Wharton. In connection with the contemplated sale, each investor in the funds maintained by Wharton was given the choice by Wharton of either agreeing to sell a pro rata portion of the shares of our capital stock held in such fund or having a pro rata portion of such shares distributed to such investor in kind. Wharton then entered into a series of stock purchase agreements with certain entities and individuals affiliated with Fred Alger Management, Inc. and certain other stockholders of ours, pursuant to which Wharton sold to such entities and individuals 1,158,006 shares of our series B convertible preferred stock, 1,207,437 shares of our series C convertible preferred stock and 74,799 shares of our series D convertible preferred stock and distributed to its investors, in kind, 1,712,071 shares of our series B convertible preferred stock, 2,762,917 shares of our series C convertible preferred stock and 449,058 shares of our series D convertible preferred stock.

In connection with Wharton's sale and distribution of its shares of our capital stock, Wharton agreed to take all necessary actions to remove certain of the special rights of the series B convertible preferred stock, which had been negotiated for by Wharton as the majority holder of the series B convertible preferred stock. These rights included the right to designate and have one director elected to our board, the right to designate one individual to observe meetings of our board and rights to vote or act as a separate class with respect to, among other things, significant corporate events and transactions. In addition, Mr. Eisenberg and Mr. Lewis resigned from all positions they held with us.

In connection with these transactions, we entered into a voting and standstill agreement with Wharton and its affiliates, including Mr. Eisenberg and Mr. Lewis, pursuant to which they granted a proxy to the chairman of our board to cause any shares held by Wharton and its affiliates, including Mr. Eisenberg and Mr. Lewis, to be voted in the same proportions as our stockholders who cast votes on the matter in question. In addition, Wharton and its affiliates, including Mr. Eisenberg and Mr. Lewis, also agreed not to (1) sell, assign, transfer or pledge any shares of our capital stock or any interest therein or any securities convertible into or exercisable for shares of our capital stock or any voting rights with respect thereto without our prior written consent, (2) grant any proxies with respect to any shares of our capital stock or (3) enter into any voting trust or other agreement with respect to the voting of any shares of our capital stock or our other securities. They also agreed not to, without our prior consent or in certain limited situations, acquire or seek to acquire any additional securities of ours, to acquire or license any of our assets, to engage in a merger or other business combination involving us or to act alone or in concert in an effort to seek control of or to influence our management or board. This voting and standstill agreement terminates upon the first to occur of a sale of all or substantially all of our assets, a merger or other acquisition that results in

our stockholders prior to the merger or acquisition owning less than 50% of the equity of the surviving corporation or parent entity and the fifth anniversary of the date of the agreement, which is August 2015.

In addition, in connection with the sale of the shares of our capital stock owned by Wharton:

- we extended the exercise period of all options held by Mr. Lewis so that the ability to exercise each such option expires 10 years after its original date of grant, to which we assigned an incremental fair value as a result of the modification of $206,896;
- we consented to a transfer from Mr. Lewis to Mr. Eisenberg of 50% of all options held by Mr. Lewis;
- we extended the exercise period of all warrants previously issued to Wharton to purchase 2,596,000 shares of our common stock for an additional four years and increased the exercise price from $2.12 and $2.47 per share to $3.00 per share, for which we recognized a $1,803,000 charge to common stock warrants and additional paid-in capital based on a Black-Scholes valuation;
- we reimbursed Wharton for an aggregate of $150,000 of its expenses incurred in connection with these transactions; and
- we granted to Mr. Lewis, in respect of his board service, an option to purchase 20,000 shares of common stock at an exercise price of $2.69 per share, the fair market value on the date of grant, and with a term of 10 years, with a grant date fair value of $34,796.

Silver Creek

We have established a subsidiary named Silver Creek Pharmaceuticals, Inc., or Silver Creek. Silver Creek's mission is to apply our Network Biology approach to the discovery and development of innovative therapeutics in the field of regenerative medicine. In August 2010, we acquired 12,000,000 shares of series A convertible preferred stock of Silver Creek in exchange for technology licenses. See "Business—Silver Creek" for more information regarding these licenses.

In addition, in August and December 2010, Silver Creek issued and sold an aggregate of 4,189,904 shares of its series A convertible preferred stock at a price per share of $1.00 to other investors for an aggregate purchase price of $4,189,904. 850,000 of such shares of series A convertible preferred stock of Silver Creek were issued and sold to Crocker Ventures LLC, an entity controlled by our director Mr. Crocker.

Registration rights

We are a party to an investor rights agreement with certain holders of our common stock, certain holders of our series B convertible preferred stock, series C convertible preferred stock, series D convertible preferred stock, series E convertible preferred stock, series F convertible preferred stock and series G convertible preferred stock, certain holders of warrants to purchase our common stock and the holder of a warrant to purchase shares of our series C convertible preferred stock, including some of our 5% stockholders and their affiliates and entities affiliated with our directors. In addition, we have agreed to grant to the holder of the warrant to purchase shares of our Series D convertible preferred stock the same registration

rights as are provided under the investor rights agreement. The investor rights agreement provides these holders the right, following the completion of this offering, to demand that we file a registration statement or request that their shares be covered by a registration statement that we are otherwise filing. See "Description of capital stock—registration rights" for additional information regarding these registration rights.

Indemnification agreements

Our certificate of incorporation provides that we will indemnify our directors and officers to the fullest extent permitted by Delaware law. In addition, we have entered into indemnification agreements with our directors and executive officers. See "Executive compensation—limitation of liability and indemnification" for additional information regarding these agreements.

Policies and procedures for related person transactions

Our board of directors has adopted written policies and procedures for the review of any transaction, arrangement or relationship in which Merrimack is a participant, the amount involved exceeds $120,000 and one of our executive officers, directors, director nominees or 5% stockholders, or their immediate family members, each of whom we refer to as a "related person," has a direct or indirect material interest.

If a related person proposes to enter into such a transaction, arrangement or relationship, which we refer to as a "related person transaction," the related person must report the proposed related person transaction to our chief legal officer. The policy calls for the proposed related person transaction to be reviewed and, if deemed appropriate, approved by our audit committee. Whenever practicable, the reporting, review and approval will occur prior to entry into the transaction. If advance review and approval is not practicable, the committee will review, and, in its discretion, may ratify the related person transaction. The policy also permits the chairman of the committee to review and, if deemed appropriate, approve proposed related person transactions that arise between committee meetings, subject to ratification by the committee at its next meeting. Any related person transactions that are ongoing in nature will be reviewed annually.

A related person transaction reviewed under the policy will be considered approved or ratified if it is authorized by the committee after full disclosure of the related person's interest in the transaction. As appropriate for the circumstances, the committee will review and consider:

- the related person's interest in the related person transaction;
- the approximate dollar value of the amount involved in the related person transaction;
- the approximate dollar value of the amount of the related person's interest in the transaction without regard to the amount of any profit or loss;
- whether the transaction was undertaken in the ordinary course of our business;
- whether the terms of the transaction are no less favorable to us than terms that could have been reached with an unrelated third party;
- the purpose of, and the potential benefits to us of, the transaction; and

- any other information regarding the related person transaction or the related person in the context of the proposed transaction that would be material to investors in light of the circumstances of the particular transaction.

The committee may approve or ratify the transaction only if the committee determines that, under all of the circumstances, the transaction is in Merrimack's best interests. The committee may impose any conditions on the related person transaction that it deems appropriate.

In addition to the transactions that are excluded by the instructions to the SEC's related person transaction disclosure rule, our board of directors has determined that the following transactions do not create a material direct or indirect interest on behalf of related persons and, therefore, are not related person transactions for purposes of this policy:

- interests arising solely from the related person's position as an executive officer of another entity (whether or not the person is also a director of such entity), that is a participant in the transaction, where (a) the related person and all other related persons own in the aggregate less than a 10% equity interest in such entity, (b) the related person and his or her immediate family members are not involved in the negotiation of the terms of the transaction and do not receive any special benefits as a result of the transaction and (c) the amount involved in the transaction equals less than the greater of $200,000 or 5% of the annual gross revenues of the company receiving payment under the transaction; and

- a transaction that is specifically contemplated by provisions of our charter or bylaws.

The policy provides that transactions involving compensation of executive officers shall be reviewed and approved by the organization and compensation committee in the manner specified in its charter.

Principal stockholders

The following table sets forth information with respect to the beneficial ownership of our common stock as of May 31, 2011 by:

- each of our directors;
- each of our named executive officers;
- all of our directors and executive officers as a group; and
- each person, or group of affiliated persons, who is known by us to beneficially own more than 5% of our common stock.

The column entitled "Percentage of shares beneficially owned—before offering" is based on a total of 77,563,713 shares of our common stock outstanding as of May 31, 2011, assuming the automatic conversion of all outstanding shares of our preferred stock into an aggregate of 66,254,763 shares of our common stock upon the closing of this offering. The column entitled "Percentage of shares beneficially owned—after offering" is based on shares of our common stock to be outstanding after this offering, including the shares of our common stock that we are selling in this offering, but not including any additional shares issuable upon exercise of outstanding options or warrants.

Beneficial ownership is determined in accordance with the rules and regulations of the SEC and includes voting or investment power with respect to our common stock. Shares of our common stock subject to options that are currently exercisable or exercisable within 60 days after May 31, 2011 are considered outstanding and beneficially owned by the person holding the options or warrants for the purpose of calculating the percentage ownership of that person but not for the purpose of calculating the percentage ownership of any other person. Except as otherwise noted, the persons and entities in this table have sole voting and investing power with respect to all of the shares of our common stock beneficially owned by them, subject to community property laws, where applicable. Except as otherwise set forth below, the address of the beneficial owner is c/o Merrimack Pharmaceuticals, Inc., One Kendall Square, Suite B7201, Cambridge, Massachusetts 02139.

Name and address of beneficial owner	Number of shares beneficially owned	Percentage of shares beneficially owned	
		Before offering	After offering
5% Stockholders:			
Fidelity Investments(1) 82 Devonshire St. Boston, MA 02109	5,524,135	7.12%	
CSFB Next Fund, Inc.(2) Eleven Madison Avenue New York, NY 10010	4,818,562	6.21%	
Fred Alger Management, Inc.(3) 111 Fifth Avenue New York, NY 10003	4,349,368	5.61%	
TPG-Axon Partners(4) 888 Seventh Avenue, 38th Floor New York, NY 10019	4,183,005	5.39%	
Directors and executive officers:			
Robert J. Mulroy(5)	2,657,901	3.34%	
Ulrik B. Nielsen, Ph.D.(6)	1,227,160	1.56%	
Clet M. Niyikiza, Ph.D.(7)	166,664	*	
Edward J. Stewart(8)	446,382	*	
William A. Sullivan(9)	208,587	*	
Lisa A. Evren	—	—	
Gary L. Crocker(10)	3,573,592	4.59%	
James van B. Dresser(11)	351,974	*	
Gordon J. Fehr(12)	381,715	*	
Robert C. Gay, Ph.D.(13)	789,346	1.02%	
Walter M. Lovenberg, Ph.D.(14)	295,605	*	
Sarah E. Nash(15)	1,122,494	1.44%	
Michael E. Porter, Ph.D.(16)	366,405	*	
Anthony J. Sinskey, Sc.D.(17)	602,376	*	
All executive officers and directors as a group (14 persons)(18)	12,852,493	15.33%	

* Represents beneficial ownership of less than one percent of our outstanding common stock.

(1) Consists of (i) 1,428,572 shares of common stock underlying shares of series G convertible preferred stock held by Ball & Co. f/b/o Fidelity Mt. Vernon Street Trust: Fidelity Growth Company Fund, (ii) 2,142,858 shares of common stock underlying shares of series G convertible preferred stock held by Ball & Co. f/b/o Fidelity Securities Fund: Fidelity Blue Chip Growth Fund, (iii) 380,800 shares of common stock underlying shares of series G convertible preferred stock held by Ball & Co. f/b/o Fidelity Securities Fund: Fidelity Series Small Cap Opportunities Fund, (iv) 80,373 shares of common stock underlying shares of series G convertible preferred stock held by M Gardiner & Co. f/b/o Fidelity Advisor Series VII: Fidelity Advisor Health Care Fund, (v) 123,883 shares of common stock underlying shares of series G convertible preferred stock held by M Gardiner & Co. f/b/o Fidelity Central Investment Portfolios LLC: Fidelity Health Care Central Fund, (vi) 14,977 shares of common stock underlying shares of series G convertible preferred stock held by M Gardiner & Co. f/b/o Variable Insurance Products Fund IV: Health Care Portfolio, (vii) 391,134 shares of common stock underlying shares of series G convertible preferred stock held by Mag & Co. f/b/o Fidelity Capital Trust: Fidelity Stock Selector Small Cap Fund, (viii) 350,000 shares of common stock underlying shares of series G convertible preferred stock held by Mag & Co. f/b/o Fidelity Select Portfolios: Health Care Portfolio and (ix) 611,538 shares of common stock underlying shares of series G convertible preferred stock held by Rowwater & Co. f/b/o Fidelity Destiny Portfolios: Fidelity Advisor Capital Development Fund.

(2) Consists of (i) 2,857,778 shares of common stock underlying shares of series E convertible preferred stock and (ii) 1,960,784 shares of common stock underlying shares of series F convertible preferred stock.

(3) Consists of (i) 396,775 shares of common stock underlying shares of series G convertible preferred stock held by Alger Capital Appreciation Fund, (ii) 496,510 shares of common stock underlying shares of series G convertible preferred stock held by Alger Capital Appreciation Institutional Fund, (iii) 129,055 shares of common stock underlying shares of series G convertible preferred stock held by Alger Capital Appreciation Portfolio, (iv) 17,984 shares of common stock underlying shares of series B convertible preferred stock and 12,149 shares of common stock underlying shares of series C convertible preferred stock held by Alger Dynamic Opportunities Fund, (v) 6,366 shares of common stock underlying shares of series B convertible preferred stock and 4,300 shares of common stock underlying shares of series C convertible preferred stock held by Alger Dynamic Return Fund, (vi) 268,966 shares of common stock underlying shares of series B convertible preferred stock and 181,700 shares of common stock underlying shares of series C convertible preferred stock held by Alger Health Sciences Fund, (vii) 343,768 shares of common stock underlying shares of series B convertible preferred stock and 232,232 shares of common stock underlying shares of series C convertible preferred stock held by Alger Mid Cap Growth Fund, (viii) 905,574 shares of common stock underlying shares of series B convertible preferred stock and 611,759 shares of common stock underlying shares of series C convertible preferred stock held by Alger Mid Cap Growth Institutional Fund, (ix) 200,531 shares of common stock underlying shares of series B convertible preferred stock and 135,469 shares of common stock underlying shares of series C convertible preferred stock held by Alger Mid Cap Growth Portfolio and (x) 406,230 shares of common stock underlying shares of series G convertible preferred stock held by Alger Spectra Fund. Fred Alger Management, Inc. is the investment advisor of each of the above listed funds and as such has sole voting and sole dispositive control over the securities owned by such funds.

(4) Consists of (i) 1,466,667 shares of common stock underlying shares of series E convertible preferred stock and 1,313,725 shares of common stock underlying shares of series F convertible preferred stock held by TPG-Axon International, L.P. and (ii) 755,555 shares of common stock underlying shares of series E convertible preferred stock and 647,058 shares of common stock underlying shares of series F convertible preferred stock held by TPG-Axon Partners, LP.

(5) Consists of (i) 474,603 shares of common stock, (ii) 40,397 shares of common stock underlying shares of series B convertible preferred stock, (iii) 29,019 shares of common stock underlying shares of series C convertible preferred stock and (iv) 2,052,082 shares of common stock underlying options that are exercisable as of May 31, 2011 or will become exercisable within 60 days after such date. Mr. Mulroy's wife, Jean Mulroy, holds (i) 57,143 shares of common stock underlying shares of series D convertible preferred stock and (ii) 4,657 shares of common stock underlying shares of series E convertible preferred stock. Mr. and Mrs. Mulroy share voting and investment control over the securities held by Mrs. Mulroy and, as a result, Mr. Mulroy may be deemed to be the beneficial owner of the securities held by Mrs. Mulroy.

(6) Consists of (i) 247,443 shares of common stock and (ii) 979,717 shares of common stock underlying options that are exercisable as of May 31, 2011 or will be come exercisable within 60 days after such date.

(7) Consists of 166,664 shares of common stock underlying options that are exercisable as of May 31, 2011 or will be come exercisable within 60 days after such date.

(8) Consists of 446,382 shares of common stock underlying options that are exercisable as of May 31, 2011 or will be come exercisable within 60 days after such date.

(9) Consists of 208,587 shares of common stock underlying options that are exercisable as of May 31, 2011 or will be come exercisable within 60 days after such date.

(10) Mr. Crocker owns directly 59,863 shares of common stock underlying shares of series C convertible preferred stock. Mr. Crocker also owns jointly with his wife, Ann Crocker, (i) 463,654 shares of common stock underlying shares of series D convertible preferred stock, (ii) 46,676 shares of common stock underlying shares of series E convertible preferred stock, (iii) 41,900 shares of common stock underlying shares of series F convertible preferred stock and (iv) 313,266 shares of common stock underlying shares of Series G convertible preferred stock. In addition, Mr. and Mrs. Crocker, certain members of Mr. Crocker's family, certain trusts established for members of Mr. Crocker's family and certain entities controlled by Mr. Crocker or members of his family are parties to a Shareholder Voting Agreement, dated December 20, 2010, or the Crocker voting agreement, pursuant to which the parties to the agreement have agreed to vote his, her or its shares as directed by Crocker Ventures, LLC. Mr. Crocker is the President, Manager and chairman of Crocker Ventures, LLC and in connection therewith shares voting control over all of the shares subject to the Shareholder Voting Agreement. As a result, in addition to the shares of common stock underlying shares of convertible preferred stock held by Mr. Crocker individually and by Mr. and Mrs. Crocker jointly, Mr. Crocker may be deemed the beneficial owner of (i) 783,838 shares of common stock underlying shares of series C convertible preferred stock, (ii) 215,717 shares of common stock underlying shares of series D convertible preferred stock, (iii) 509,324 shares of common stock underlying shares of series E convertible preferred stock, (iv) 613,100 shares of common stock underlying shares of series F convertible preferred stock and (v) 170,004 shares of common stock underlying shares of series G convertible preferred stock held by the parties to the Crocker voting agreement. The number of shares beneficially owned by Mr. Crocker also includes 356,250 shares of common stock underlying options that have been issued to Mr. Crocker and are exercisable as of May 31, 2011 or will become exercisable within 60 days after such date.

(11) Consists of (i) 87,500 shares of common stock, (ii) 11,111 shares of common stock underlying shares of series E convertible preferred stock, (iii) 4,901 shares of common stock underlying shares of series F convertible preferred stock and (iv) 248,462 shares of common stock underlying options that are exercisable as of May 31, 2011 or will become exercisable within 60 days after such date.

(12) Consists of (i) 141,031 shares of common stock, (ii) 22,222 shares of common stock underlying shares of series E convertible preferred stock and (iii) 218,462 shares of common stock underlying options that are exercisable as of May 31, 2011 or will become exercisable within 60 days after such date.

(13) Includes (i) 175,316 shares of common stock underlying shares of series B convertible preferred stock, (ii) 142,857 shares of common stock underlying shares of series D convertible preferred stock and (iii) 153,000 shares of common stock underlying options that are exercisable as of May 31, 2011 or will become exercisable within 60 days after such date. Dr. Gay is also the trustee of the Robert C. Gay 1998 Family Trust and has voting and investment control over, and may be deemed to be the beneficial owner of, (i) 175,316 shares of common stock underlying shares of series B convertible preferred stock and (ii) 142,857 shares of common stock underlying shares of series D convertible preferred stock held by the Robert C. Gay 1998 Family Trust.

(14) Consists of (i) 50,000 shares of common stock, (ii) 7,143 shares of common stock underlying shares of series D convertible preferred stock and (iii) 238,462 shares of common stock underlying options that are exercisable as of May 31, 2011 or will become exercisable within 60 days after such date.

(15) Includes (i) 44,440 shares of common stock, (ii) 120,161 shares of common stock underlying shares of series C convertible preferred stock, (iii) 28,571 shares of common stock underlying shares of series D convertible preferred stock, (iv) 222,222 shares of common stock underlying shares of series E convertible preferred stock, (v) 136,058 shares of common stock underlying shares of series F convertible preferred stock (vi) 25,000 shares of common stock underlying shares of series G convertible preferred stock and (vii) 193,000 shares of common stock underlying options that are exercisable as of May 31, 2011 or will become exercisable within 60 days after such date. Ms. Nash is also the trustee of the Sarah E. Nash 2009 Grantor Retained Annuity Trust and, as such, has voting and investment control over, and may be deemed the beneficial owner of, 71,000 shares of common stock underlying shares of Series F convertible preferred stock held by the Sarah E. Nash 2009 Grantor Retained Annuity Trust. Ms. Nash's husband, Michael Sylvester, holds (i) 22,220 shares of common stock, (ii) 30,040 shares of common stock underlying shares of Series C convertible preferred stock, (iii) 14,286 shares of common stock underlying shares of Series D convertible preferred stock, (iv) 188,889 shares of common stock underlying shares of Series E convertible preferred stock, (v) 19,607 shares of common stock underlying shares of series F convertible preferred stock and (vi) 7,000 shares of common stock underlying shares of series G convertible preferred stock. Mr. Sylvester and Ms. Nash share voting and investment control over the securities held by Mr. Sylvester and, as a result, Ms. Nash may be deemed the beneficial owner of the securities held by Mr. Sylvester.

(16) Includes (i) 63,000 shares of common stock, (ii) 56,509 shares of common stock underlying shares of series C convertible preferred stock, (iii) 34,286 shares of common stock underlying shares of series D convertible preferred stock, (iv) 25,000 shares of common stock underlying shares of series E convertible preferred stock, (v) 33,000 shares of common stock underlying shares of series F convertible preferred stock, (vi) 28,570 shares of common stock underlying shares of series G convertible preferred stock and (vii) 126,040 shares of common stock underlying options that are exercisable as May 31, 2011 or will become exercisable within 60 days after such date.

(17) Consists of (i) 209,167 shares of common stock and (ii) 238,462 shares of common stock underlying options that are exercisable as of May 31, 2011 or will become exercisable within 60 dates after such date. Dr. Sinskey also owns jointly with his wife, Chokyun Rha-Sinskey, (i) 36,723 shares of common stock underlying shares of Series B convertible preferred stock and (ii) 18,024 shares of common stock underlying shares of series C convertible preferred stock. Dr. Sinskey is also the trustee of the Anthony J. Sinskey 2010 Grat I and, as such, has voting and investment control over, and may be deemed the beneficial owner of, 100,000 shares of common stock held by the Anthony J. Sinskey 2010 Grat I.

(18) Includes 6,287,862 shares of common stock underlying options that are exercisable as of May 31, 2011 or will be come exercisable within 60 days after such date.

Description of capital stock

The following description of our capital stock and provisions of our certificate of incorporation and bylaws are summaries and are qualified by reference to the certificate of incorporation and the bylaws that will be in effect upon the closing of this offering. We have filed copies of these documents with the SEC as exhibits to our registration statement of which this prospectus forms a part. The description of the capital stock reflects changes to our capital structure that will occur upon the closing of this offering.

Upon the closing of this offering, our authorized capital stock will consist of shares of our common stock, $0.01 par value per share, and shares of our preferred stock, $0.01 par value per share, all of which preferred stock will be undesignated.

As of May 31, 2011, we had issued and outstanding:

- 11,308,950 shares of our common stock outstanding held by 147 stockholders of record;
- 3,873,448 shares of our series B convertible preferred stock that are convertible into 5,978,479 shares of our common stock;
- 14,423,092 shares of our series C convertible preferred stock that are convertible into 14,423,092 shares of our common stock;
- 8,086,305 shares of our series D convertible preferred stock that are convertible into 8,086,305 shares of our common stock;
- 14,990,892 shares of our series E convertible preferred stock that are convertible into 14,990,892 shares of our common stock;
- 11,775,995 shares of our series F convertible preferred stock that are convertible into 11,775,995 shares of our common stock; and
- 11,000,000 shares of our series G convertible preferred stock that are convertible into 11,000,000 shares of our common stock.

As of May 31, 2011, we also had outstanding:

- options to purchase 17,756,994 shares of our common stock at a weighted average exercise price of $2.47 per share;
- warrants to purchase 2,937,049 shares of our common stock at a weighted average exercise price of $2.93 per share held by 75 persons;
- a warrant to purchase 1,033 shares of our series C convertible preferred stock at an exercise price of $1.889 per share held by General Electric Capital Corporation; and
- a warrant to purchase an aggregate of 302,143 shares of our series D convertible preferred stock at an exercise price of $3.50 per share held by Hercules Technology Growth Capital, Inc.

Upon the closing of this offering:

- all of the outstanding shares of our preferred stock will automatically convert into an aggregate of 66,254,763 shares of our common stock;

- the warrants to purchase an aggregate of 2,937,049 shares of our common stock will remain outstanding and exercisable to purchase shares of our common stock at a weighted average exercise price of $2.93;

- the warrant to purchase 1,033 shares of our series C convertible preferred stock at an exercise price of $1.889 per share held by General Electric Capital Corporation will automatically become a warrant to purchase 1,033 shares of our common stock at an exercise price of $1.889 per share; and

- the warrant to purchase 302,143 shares of our series D convertible preferred stock at an exercise price of $3.50 per share held by Hercules Technology Growth Capital, Inc. will automatically become a warrant to purchase 302,143 shares of our common stock at an exercise price of $3.50 per share.

Common stock

Holders of our common stock are entitled to one vote for each share held on all matters submitted to a vote of stockholders and do not have cumulative voting rights. Each election of directors by our stockholders will be determined by a plurality of the votes cast by the stockholders entitled to vote on the election. Holders of common stock are entitled to receive proportionately any dividends as may be declared by our board of directors, subject to any preferential dividend rights of outstanding preferred stock.

In the event of our liquidation or dissolution, the holders of our common stock are entitled to receive proportionately all assets available for distribution to stockholders after the payment of all debts and other liabilities and subject to the prior rights of any of our outstanding preferred stock. Holders of our common stock have no preemptive, subscription, redemption or conversion rights. The rights, preferences and privileges of holders of our common stock are subject to and may be adversely affected by the rights of the holders of shares of any series of our preferred stock that we may designate and issue in the future.

Preferred stock

Under the terms of our certificate of incorporation, our board of directors is authorized to issue shares of preferred stock in one or more series without stockholder approval. Our board of directors has the discretion to determine the rights, preferences, privileges and restrictions, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences, of each series of preferred stock.

The purpose of authorizing our board of directors to issue preferred stock and determine its rights and preferences is to eliminate delays associated with a stockholder vote on specific issuances. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions, future financings and other corporate purposes, could have the effect of making it more difficult for a third party to acquire, or could discourage a third party from seeking to acquire, a majority of our outstanding voting stock. Upon the closing of this offering, there will be no shares of preferred stock outstanding, and we have no present plans to issue any shares of preferred stock.

Warrants

As of May 31, 2011, we had outstanding warrants to purchase an aggregate of 2,937,049 shares of our common stock at a weighted average exercise price of $2.93 per share held by 76 persons; a warrant to purchase an aggregate of 1,033 shares of our series C convertible preferred stock at an exercise price of $1.889 per share held by General Electric Capital Corporation; and a warrant to purchase an aggregate of 302,143 shares of our series D convertible preferred stock at an exercise price of $3.50 per share held by Hercules Technology Growth Capital, Inc.

Upon the closing of this offering and after giving effect to the automatic conversion of our preferred stock into common stock:

- the warrants to purchase an aggregate of 2,937,049 shares of our common stock will remain outstanding and exercisable to purchase shares of our common stock and will continue to have a weighted average exercise price of $2.93;
- the warrant to purchase 1,033 shares of our series C convertible preferred stock at an exercise price of $1.889 per share held by General Electric Capital Corporation will automatically become a warrant to purchase an aggregate of 1,033 shares of our common stock at an exercise price of $1.889 per share; and
- the warrant to purchase 302,143 shares of our series D convertible preferred stock at an exercise price of $3.50 per share held by Hercules Technology Growth Capital, Inc. will automatically become a warrant to purchase an aggregate of 302,143 shares of our common stock at an exercise price of $3.50 per share.

The warrants that were exercisable for shares of common stock prior to the closing of this offering, which we refer to as the existing common warrants, require adjustment to the number of shares for which they are exercisable and their exercise prices in the event of any merger, consolidation, reorganization or dissolution of us, the sale of all of our assets or the declaration and payment of a stock dividend by us. All of the existing common warrants provide for cashless exercise. In addition, the existing common warrants to purchase an aggregate of 49,750 shares of common stock held by General Electric Capital Corporation will be automatically exercised as of immediately prior to the expiration date of such warrant if not otherwise exercised prior to the expiration date. The existing common warrants held by General Electric Capital Corporation expire at various times between November 22, 2011 and June 30, 2013. The existing common warrants held by other persons do not automatically exercise immediately prior to their expiration. Such other existing common warrants expire at various times between December 17, 2011 and March 10, 2016.

The warrant to purchase 1,033 shares of our series C convertible preferred stock held by General Electric Capital Corporation requires adjustment to the number of shares for which it is exercisable and its exercise price in the event of any merger, consolidation, reorganization or dissolution of us, the sale of all of our assets or the declaration and payment of a stock dividend by us. The warrant provides for cashless exercise and, if not exercised prior to the expiration date, will be automatically exercised as of immediately prior to the expiration date of such warrant. The warrant expires on November 22, 2011.

The warrant to purchase 302,143 shares of our series D convertible preferred stock held by Hercules Technology Growth Capital, Inc also has certain anti-dilution protections and requires adjustment to the number of shares for which it is exercisable and its exercise price in the event of certain mergers or consolidations. This warrant provides for cashless exercise and expires two years after the closing of this offering.

Options

As of May 31, 2011, options to purchase 17,756,994 shares of our common stock at a weighted average exercise price of $2.47 per share were outstanding.

Delaware anti-takeover law and certain charter and bylaws provisions

Delaware law

We are subject to Section 203 of the Delaware General Corporation Law. Subject to certain exceptions, Section 203 prevents a publicly held Delaware corporation from engaging in a "business combination" with any "interested stockholder" for three years following the date that the person became an interested stockholder, unless either the interested stockholder attained such status with the approval of our board of directors, the business combination is approved by our board of directors and stockholders in a prescribed manner or the interested stockholder acquired at least 85% of our outstanding voting stock in the transaction in which it became an interested stockholder. A "business combination" includes, among other things, a merger or consolidation involving us and the "interested stockholder" and the sale of more than 10% of our assets. In general, an "interested stockholder" is any entity or person beneficially owning 15% or more of our outstanding voting stock and any entity or person affiliated with or controlling or controlled by such entity or person. The restrictions contained in Section 203 are not applicable to any of our existing stockholders that will own 15% or more of our outstanding voting stock upon the closing of this offering.

Staggered board

Our certificate of incorporation and our bylaws divide our board of directors into three classes with staggered three-year terms. In addition, our certificate of incorporation and our bylaws provide that directors may be removed only for cause and only by the affirmative vote of the holders of 75% of our shares of capital stock present in person or by proxy and entitled to vote. Under our certificate of incorporation and bylaws, any vacancy on our board of directors, including a vacancy resulting from an enlargement of our board of directors, may be filled only by vote of a majority of our directors then in office. Furthermore, our certificate of incorporation provides that the authorized number of directors may be changed only by the resolution of our board of directors. The classification of our board of directors and the limitations on the ability of our stockholders to remove directors, change the authorized number of directors and fill vacancies could make it more difficult for a third party to acquire, or discourage a third party from seeking to acquire, control of our company.

Stockholder action; special meeting of stockholders; advance notice requirements for stockholder proposals and director nominations

Our certificate of incorporation and our bylaws provide that any action required or permitted to be taken by our stockholders at an annual meeting or special meeting of stockholders may only be taken if it is properly brought before such meeting and may not be taken by written

action in lieu of a meeting. Our certificate of incorporation and our bylaws also provide that, except as otherwise required by law, special meetings of the stockholders can only be called by our chairman of the board, our president or chief executive officer or our board of directors. In addition, our bylaws establish an advance notice procedure for stockholder proposals to be brought before an annual meeting of stockholders, including proposed nominations of candidates for election to our board of directors. Stockholders at an annual meeting may only consider proposals or nominations specified in the notice of meeting or brought before the meeting by or at the direction of our board of directors, or by a stockholder of record on the record date for the meeting, who is entitled to vote at the meeting and who has delivered timely written notice in proper form to our secretary of the stockholder's intention to bring such business before the meeting. These provisions could have the effect of delaying until the next stockholder meeting stockholder actions that are favored by the holders of a majority of our outstanding voting securities. These provisions also could discourage a third party from making a tender offer for our common stock, because even if it acquired a majority of our outstanding voting stock, it would be able to take action as a stockholder, such as electing new directors or approving a merger, only at a duly called stockholders meeting and not by written consent.

Super-majority voting

The Delaware General Corporation Law provides generally that the affirmative vote of a majority of the shares entitled to vote on any matter is required to amend a corporation's certificate of incorporation or bylaws, unless a corporation's certificate of incorporation or bylaws, as the case may be, requires a greater percentage. Our bylaws may be amended or repealed by a majority vote of our board of directors or the affirmative vote of the holders of at least 75% of the votes that all our stockholders would be entitled to cast in any annual election of directors. In addition, the affirmative vote of the holders of at least 75% of the votes that all our stockholders would be entitled to cast in any election of directors is required to amend or repeal or to adopt any provisions inconsistent with any of the provisions of our certificate of incorporation described above.

Registration rights

We have entered into a fifth amended and restated investor rights agreement, dated April 6, 2011, which we refer to as the investor rights agreement, with certain holders of shares of our common stock, series B convertible preferred stock, series C convertible preferred stock, series D convertible preferred stock, series E convertible preferred stock, series F convertible preferred stock and series G convertible preferred stock, certain holders of warrants to purchase our common stock and the holder of a warrant to purchase shares of our series C convertible preferred stock. In addition we have agreed to grant to the holder of the warrant to purchase shares of our series D convertible preferred stock the same registration rights as are provided under the investor rights agreement. Upon the completion of this offering, holders of a total of shares of our common stock as of May 31, 2011, including shares of our common stock issuable upon exercise of outstanding warrants, will have the right to require us to register these shares under the Securities Act under specified circumstances. After registration pursuant to these rights, these shares will become freely tradable without restriction under the Securities Act. If not otherwise exercised, the rights described below will expire five years after the closing of this offering.

Demand registration rights

Beginning six months after the effective date of the registration statement of which this prospectus forms a part, subject to specified limitations set forth in the investor rights agreement, at any time, the holders of at least 20% of the then outstanding shares having rights under the investor rights agreement, which we refer to as registrable shares, including registrable shares of our common stock issuable upon exercise of outstanding warrants, acting together, may demand in writing that we register all or a portion of the registrable shares under the Securities Act so long as the total amount of registrable shares registered have an aggregate offering price of at least $5.0 million (based on the then current market price or fair value). We are not obligated to file a registration statement pursuant to this provision on more than two occasions, and we are not obligated to file a registration statement pursuant to this provision within six months of the effective date of any other registration statement that we may file.

Form S-3 registration rights

In addition, at any time after we become eligible to file a registration statement on Form S-3 under the Securities Act, subject to specified limitations, the holders of at least 10% of the registrable shares, including registrable shares of our common stock issuable upon exercise of outstanding warrants, may demand in writing that we register on Form S-3 all or a portion of the registrable shares so long as the total amount of registrable shares being registered have an aggregate offering price of at least $2.5 million (based on the then current market price). We are not obligated to file a Form S-3 pursuant to this provision on more than two occasions in any 12-month period.

Incidental registration rights

If, at any time after the closing of this offering, we propose to file a registration statement under the Securities Act, other than pursuant to the demand registration rights and Form S-3 registration rights described above, the holders of registrable shares will be entitled to notice of the registration and, subject to specified exceptions, we will be required to use our best efforts to register all or a portion of any registrable shares then held by them that they request that we register.

In the event that any registration in which the holders of registrable shares participate pursuant to our investor rights agreement is an underwritten public offering, we agree to enter into an underwriting agreement containing customary representation and warranties and covenants, including without limitation customary provisions with respect to indemnification by us of the underwriters of such offering.

In the event that any registration in which the holders of registrable shares participate pursuant to our investor rights agreement is an underwritten public offering, we will use our best efforts to include the requested registrable shares to be included, but may be limited by market conditions.

Expenses

Pursuant to the investor rights agreement, we are required to pay all registration expenses, including registration and filing fees, exchange listing fees, printing expenses and accounting fees and the fees and expenses of one counsel to represent the selling stockholders, other than

any underwriting discounts and commissions, related to any demand or incidental registration. The investor rights agreement contains customary cross-indemnification provisions, pursuant to which we are obligated to indemnify the selling stockholders in the event of material misstatements or omissions in the registration statement attributable to us, and they are obligated to indemnify us for material misstatements or omissions in the registration statement attributable to them.

Transfer agent and registrar

The transfer agent and registrar for our common stock will be .

NASDAQ Global Market

We are applying to have our common stock listed on The NASDAQ Global Market under the symbol "MACK."

Shares eligible for future sale

Prior to this offering, there has been no public market for our common stock, and a liquid trading market for our common stock may not develop or be sustained after this offering. Future sales of substantial amounts of our common stock in the public market, including shares issued upon exercise of outstanding options and warrants or in the public market after this offering, or the anticipation of these sales, could adversely affect market prices prevailing from time to time and could impair our ability to raise capital through sales of equity securities.

Upon the closing of this offering, we will have outstanding an aggregate of shares of our common stock, after giving effect to the issuance of shares of our common stock in this offering and the automatic conversion of all outstanding shares of our preferred stock into an aggregate of 66,254,763 shares of our common stock and assuming no exercise by the underwriters of their over-allotment option, no exercise of options outstanding as of May 31, 2011 and no exercise of the warrants outstanding as of May 31, 2011.

Of the shares to be outstanding immediately after the closing of this offering, we expect that the shares to be sold in this offering will be freely tradable without restriction under the Securities Act unless purchased by our "affiliates," as that term is defined in Rule 144 under the Securities Act. The remaining shares of our common stock outstanding after this offering will be "restricted securities" under Rule 144, and we expect that substantially all of these restricted securities will be subject to the 180-day lock-up period under the lock-up agreements as described below. These restricted securities may be sold in the public market only if registered or pursuant to an exemption from registration, such as Rule 144 or Rule 701 under the Securities Act.

Rule 144

In general, under Rule 144, beginning 90 days after the date of this prospectus, any person who is not our affiliate and has held their shares for at least six months, including the holding period of any prior owner other than one of our affiliates, may sell shares without restriction, subject to the availability of current public information about us. In addition, under Rule 144, any person who is not our affiliate and has held their shares for at least one year, including the holding period of any prior owner other than one of our affiliates, would be entitled to sell an unlimited number of shares immediately upon the closing of this offering without regard to whether current public information about us is available.

Beginning 90 days after the date of this prospectus, a person who is our affiliate or who was our affiliate at any time during the preceding three months and who has beneficially owned restricted securities for at least six months, including the holding period of any prior owner other than one of our affiliates, is entitled to sell a number of shares within any three-month period that does not exceed the greater of:

- 1% of the number of shares of our common stock then outstanding, which will equal approximately shares immediately after this offering; and
- the average weekly trading volume of our common stock on The NASDAQ Global Market during the four calendar weeks preceding the filing of a Notice of Proposed Sale of Securities Pursuant to Rule 144 with respect to the sale.

Sales under Rule 144 by our affiliates are also subject to manner of sale provisions and notice requirements and to the availability of current public information about us.

Upon expiration of the 180-day lock-up period described below, approximately shares of our common stock will be eligible for sale under Rule 144, including shares eligible for resale immediately upon the closing of this offering as described above. We cannot estimate the number of shares of our common stock that our existing stockholders will elect to sell under Rule 144.

Rule 701

In general, under Rule 701 of the Securities Act, any of our employees, consultants or advisors, other than our affiliates, who purchased shares from us in connection with a qualified compensatory stock plan or other written agreement is eligible to resell these shares 90 days after the date of this prospectus in reliance on Rule 144, but without compliance with the holding period requirements of Rule 144 and without regard to the volume of such sales or the availability of public information about us. Subject to the 180-day lock-up period described below, approximately shares of our common stock will be eligible for sale in accordance with Rule 701.

Lock-up agreements

We and each of our directors and executive officers and certain holders of our outstanding common stock, who collectively own shares of our common stock, based on shares outstanding as of May 31, 2011, have agreed that, without the prior written consent of J.P. Morgan Securities LLC on behalf of the underwriters, we and they will not, subject to limited exceptions, during the period ending 180 days after the date of this prospectus, subject to extension in specified circumstances:

- offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase or otherwise transfer or dispose of, directly or indirectly, any shares of our common stock or any securities convertible into or exercisable or exchangeable for common stock, or publicly disclose the intention to make any offer, sale, pledge or disposition;

- enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of our common stock; or

- make any demand for or exercise any right with respect to the registration of any shares of our common stock or any security convertible into or exercisable or exchangeable for shares of our common stock.

The lock-up restrictions, specified exceptions and the circumstances under which the lock-up period may be extended are described in more detail under "Underwriting."

Registration rights

Subject to the lock-up agreements described above, upon the closing of this offering, the holders of an aggregate of shares of our common stock, including shares of our common stock underlying outstanding warrants, will have the right to require us to register

these shares under the Securities Act under specified circumstances. After registration pursuant to these rights, these shares will become freely tradable without restriction under the Securities Act. See "Description of capital stock—registration rights" for additional information regarding these registration rights.

Stock options

As of May 31, 2011, we had outstanding options to purchase 17,756,994 shares of our common stock, of which options to purchase 12,174,077 shares were vested. Following this offering, we intend to file one or more registration statements on Form S-8 under the Securities Act to register all of the shares of our common stock subject to outstanding options and options and other awards issuable pursuant to our 2011 plan and shares of our common stock subject to outstanding options issued pursuant to our 1999 plan and our 2008 plan. See "Executive compensation—stock option and other employee benefit plans" for additional information regarding these plans. Accordingly, shares of our common stock registered under the registration statements will be available for sale in the open market, subject to Rule 144 volume limitations applicable to affiliates, and subject to any vesting restrictions and lock-up agreements applicable to these shares.

Warrants

Upon the closing of this offering, and after giving effect to the automatic conversion of our preferred stock into common stock, we will have outstanding warrants to purchase an aggregate of 3,240,225 shares of our common stock at a weighted average exercise price of $2.98 per share held by 76 persons. Any shares of common stock issued upon exercise of such warrants will be restricted securities and may be sold in the public market only if registered or pursuant to an exemption from registration, such as Rule 144, subject to the expiration of the lock-up period described above.

Material U.S. tax considerations for non-U.S. holders of common stock

The following is a general discussion of material U.S. federal income and estate tax considerations relating to ownership and disposition of our common stock by a non-U.S. holder. For purposes of this discussion, the term "non-U.S. holder" means a beneficial owner of our common stock that is not, for U.S. federal income tax purposes:

- an individual who is a citizen or resident of the United States;
- a corporation, or other entity treated as a corporation for U.S. federal income tax purposes, created or organized in or under the laws of the United States or of any political subdivision of the United States;
- an estate the income of which is subject to U.S. federal income taxation regardless of its source; or
- a trust, if a U.S. court is able to exercise primary supervision over the administration of the trust and one or more U.S. persons have authority to control all substantial decisions of the trust or if the trust has a valid election to be treated as a U.S. person under applicable U.S. Treasury Regulations.

An individual may be treated as a resident instead of a nonresident of the United States in any calendar year for U.S. federal income tax purposes if the individual was present in the United States for at least 31 days in that calendar year and for an aggregate of at least 183 days during the three-year period ending with the current calendar year. For purposes of this calculation, all of the days present in the current year, one-third of the days present in the immediately preceding year and one-sixth of the days present in the second preceding year are counted. Residents are taxed for U.S. federal income tax purposes as if they were U.S. citizens.

This discussion is based on current provisions of the U.S. Internal Revenue Code of 1986, as amended, which we refer to as the Code, existing and proposed U.S. Treasury Regulations promulgated thereunder, current administrative rulings and judicial decisions, all as in effect as of the date of this prospectus and all of which are subject to change or to differing interpretation, possibly with retroactive effect. Any change could alter the tax consequences to non-U.S. holders described in this prospectus. In addition, the Internal Revenue Service, or the IRS, could challenge one or more of the tax consequences described in this prospectus.

We assume in this discussion that each non-U.S. holder holds shares of our common stock as a capital asset (generally, property held for investment). This discussion does not address all aspects of U.S. federal income and estate taxation that may be relevant to a particular non-U.S. holder in light of that non-U.S. holder's individual circumstances nor does it address any aspects of U.S. state, local or non-U.S. taxes. This discussion also does not consider any specific facts or circumstances that may apply to a non-U.S. holder and does not address the special tax rules applicable to particular non-U.S. holders, such as:

- insurance companies;
- tax-exempt organizations;

- financial institutions;
- brokers or dealers in securities;
- regulated investment companies;
- pension plans;
- controlled foreign corporations;
- passive foreign investment companies;
- non-U.S. holders that hold our common stock as part of a straddle, hedge, conversion transaction, synthetic security or other integrated investment; and
- certain U.S. expatriates.

In addition, this discussion does not address the tax treatment of partnerships or persons who hold their common stock through partnerships or other entities which are pass-through entities for U.S. federal income tax purposes. A partner in a partnership or other pass-through entity that will hold our common stock should consult his, her or its own tax advisor regarding the tax consequences of the ownership and disposition of our common stock through a partnership or other pass-through entity, as applicable.

Prospective investors should consult their own tax advisors regarding the U.S. federal, state, local and non-U.S. income and other tax considerations of acquiring, holding and disposing of our common stock.

Dividends

If we pay distributions on our common stock, those distributions generally will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. If a distribution exceeds our current and accumulated earnings and profits, the excess will be treated as a tax-free return of the non-U.S. holder's investment, up to such holder's tax basis in the common stock. Any remaining excess will be treated as capital gain, subject to the tax treatment described below under the heading "Gain on disposition of common stock."

As discussed under "Dividend policy," we do not expect to pay cash dividends to holders of our common stock in the foreseeable future. In the event we do pay dividends, dividends paid to a non-U.S. holder generally will be subject to withholding of U.S. federal income tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence. If we determine, at a time reasonably close to the date of payment of a distribution on our common stock, that the distribution will not constitute a dividend because we do not anticipate having current or accumulated earnings and profits, we intend not to withhold any U.S. federal income tax on the distribution as permitted by U.S. Treasury Regulations.

Dividends that are treated as effectively connected with a trade or business conducted by a non-U.S. holder within the United States, and if an applicable income tax treaty so provides, that are attributable to a permanent establishment or a fixed base maintained by the non-U.S. holder within the United States, are generally exempt from the 30% withholding tax if the

non-U.S. holder satisfies applicable certification and disclosure requirements. However, such U.S. effectively connected income, net of specified deductions and credits, is taxed at the same graduated U.S. federal income tax rates applicable to U.S. persons (as defined in the Code). Any U.S. effectively connected income received by a non-U.S. holder that is a corporation may also, under certain circumstances, be subject to an additional "branch profits tax" at a 30% rate or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence.

A non-U.S. holder of our common stock who claims the benefit of an applicable income tax treaty between the United States and such holder's country of residence generally will be required to provide a properly executed IRS Form W-8BEN (or successor form) and satisfy applicable certification and other requirements. Non-U.S holders are urged to consult their own tax advisors regarding their entitlement to benefits under a relevant income tax treaty.

A non-U.S. holder that is eligible for a reduced rate of U.S. withholding tax under an income tax treaty may obtain a refund or credit of any excess amounts withheld by timely filing an appropriate claim with the IRS.

Gain on disposition of common stock

A non-U.S. holder generally will not be subject to U.S. federal income tax on gain recognized on a disposition of our common stock unless:

- the gain is effectively connected with the non-U.S. holder's conduct of a trade or business in the United States, and if an applicable income tax treaty so provides, the gain is attributable to a permanent establishment or fixed base maintained by the non-U.S. holder in the United States; in these cases, the non-U.S. holder will be taxed on a net income basis at the regular graduated rates and in the manner applicable to U.S. persons, and if the non-U.S. holder is a foreign corporation, an additional branch profits tax at a rate of 30%, or a lower rate as may be specified by an applicable income tax treaty, may also apply;

- the non-U.S. holder is a nonresident alien present in the United States for 183 days or more in the taxable year of the disposition and certain other requirements are met, in which case the non-U.S. holder will be subject to a 30% tax (or such lower rate as may be specified by an applicable income tax treaty) on the net gain derived from the disposition, which may be offset by U.S.-source capital losses of the non-U.S. holder, if any; or

- we are, or have been at any time during the five-year period preceding such disposition (or the non-U.S. holder's holding period, if shorter), a "U.S. real property holding corporation," unless our common stock is regularly traded on an established securities market and the non-U.S. holder held no more than 5% of our outstanding common stock, directly or indirectly, during the shorter of the five-year period ending on the date of the disposition or the period that the non-U.S. holder held our common stock. Generally, a corporation is a "U.S. real property holding corporation" if the fair market value of its "U.S. real property interests" equals or exceeds 50% of the sum of the fair market value of its worldwide real property interests plus its other assets used or held for use in a trade or business. Although there can be no assurance, we believe that we are not currently, and we do not anticipate becoming, a "U.S. real property holding corporation" for U.S. federal income tax purposes.

No assurance can be provided that our common stock will be regularly traded on an established securities market for purposes of the rule described above.

Information reporting and backup withholding

We must report annually to the IRS and to each non-U.S. holder the gross amount of the distributions on our common stock paid to such holder and the tax withheld, if any, with respect to such distributions. Non-U.S. holders may have to comply with specific certification procedures to establish that the holder is not a U.S. person (as defined in the Code) in order to avoid backup withholding at the applicable rate, currently 28%, with respect to dividends on our common stock. Generally, a holder will comply with such procedures if it provides a properly executed IRS Form W-8BEN (or other applicable Form W-8) or otherwise meets documentary evidence requirements for establishing that it is a non-U.S. holder, or otherwise establishes an exemption. Dividends paid to non-U.S. holders subject to withholding of U.S. federal income tax, as described above under the heading "Dividends," will generally be exempt from U.S. backup withholding.

Information reporting and backup withholding generally will apply to the proceeds of a disposition of our common stock by a non-U.S. holder effected by or through the U.S. office of any broker, U.S. or foreign, unless the holder certifies its status as a non-U.S. holder and satisfies certain other requirements, or otherwise establishes an exemption. Generally, information reporting and backup withholding will not apply to a payment of disposition proceeds to a non-U.S. holder where the transaction is effected outside the United States through a non-U.S. office of a broker. However, for information reporting purposes, dispositions effected through a non-U.S. office of a broker with substantial U.S. ownership or operations generally will be treated in a manner similar to dispositions effected through a U.S. office of a broker. Non-U.S. holders should consult their own tax advisors regarding the application of the information reporting and backup withholding rules to them.

Copies of information returns may be made available to the tax authorities of the country in which the non-U.S. holder resides or is incorporated under the provisions of a specific treaty or agreement.

Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules from a payment to a non-U.S. holder can be refunded or credited against the non-U.S. holder's U.S. federal income tax liability, if any, provided that an appropriate claim is timely filed with the IRS.

Federal estate tax

Common stock owned or treated as owned by an individual who is a non-U.S. holder (as specially defined for U.S. federal estate tax purposes) at the time of death will be included in the individual's gross estate for U.S. federal estate tax purposes and, therefore, may be subject to U.S. federal estate tax, unless an applicable estate tax or other treaty provides otherwise.

Legislation affecting certain non-U.S. holders

Legislation enacted in 2010 generally imposes a U.S. federal withholding tax at a rate of 30% on dividends and the gross proceeds of a disposition of our common stock paid after

December 31, 2012 to certain foreign entities (including foreign financial institutions and foreign intermediaries), unless such foreign entity satisfies various U.S. information reporting and due diligence requirements (generally relating to ownership by U.S. persons of interests in or accounts with the entity). Under certain circumstances, a non-U.S. holder may be eligible for refunds or credits of the tax. Non-U.S. holders should consult their own tax advisors regarding the possible implications of this legislation on their investment in our common stock.

The preceding discussion of material U.S. federal tax considerations is for general information only. It is not tax advice. Prospective investors should consult their own tax advisors regarding the particular U.S. federal, state, local and non- U.S. tax consequences of purchasing, holding and disposing of our common stock, including the consequences of any proposed changes in applicable laws.

Underwriting

We are offering the shares of our common stock described in this prospectus through a number of underwriters. J.P. Morgan Securities LLC is acting as book running manager of the offering and as representative of the underwriters. We have entered into an underwriting agreement with the underwriters. Subject to the terms and conditions of the underwriting agreement, we have agreed to sell to the underwriters, and each underwriter has severally agreed to purchase, at the public offering price less the underwriting discounts and commissions set forth on the cover page of this prospectus, the number of shares of our common stock listed next to its name in the following table:

Name	Number of shares
J.P. Morgan Securities LLC	
Merrill Lynch, Pierce, Fenner & Smith Incorporated	
Cowen and Company, LLC	
Oppenheimer & Co. Inc.	
Total	

The underwriters are committed to purchase all the shares of our common stock offered by us if they purchase any shares. The underwriting agreement also provides that if an underwriter defaults, the purchase commitments of non-defaulting underwriters may also be increased or the offering may be terminated.

The underwriters propose to offer the shares of our common stock directly to the public at the initial public offering price set forth on the cover page of this prospectus and to certain dealers at that price less a concession not in excess of $ per share. Any such dealers may resell shares to certain other brokers or dealers at a discount of up to $ per share from the initial public offering price. After the initial public offering of the shares, the offering price and other selling terms may be changed by the underwriters. Sales of shares made outside of the United States may be made by affiliates of the underwriters. The representative has advised us that the underwriters do not intend to confirm discretionary sales in excess of 5% of the shares of our common stock offered in this offering.

The underwriters have an option to buy up to additional shares of our common stock from us to cover sales of shares by the underwriters which exceed the number of shares specified in the table above. The underwriters have 30 days from the date of this prospectus to exercise this over-allotment option. If any shares are purchased with this over-allotment option, the underwriters will purchase shares in approximately the same proportion as shown in the table above. If any additional shares of our common stock are purchased, the underwriters will offer the additional shares on the same terms as those on which the shares are being offered.

The underwriting fee is equal to the public offering price per share of our common stock less the amount paid by the underwriters to us per share of our common stock. The underwriting fee is $ per share. The following table shows the per share and total underwriting discounts and commissions to be paid to the underwriters assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

	Without over-allotment exercise	With full over-allotment exercise
Per Share	$	$
Total	$	$

We estimate that the total expenses of this offering, including registration, filing and listing fees, printing fees and legal and accounting expenses, but excluding the underwriting discounts and commissions, will be approximately $. The underwriters have agreed to reimburse a portion of our expenses for this offering.

A prospectus in electronic format may be made available on the web sites maintained by one or more underwriters, or selling group members, if any, participating in the offering. The underwriters may agree to allocate a number of shares to underwriters and selling group members for sale to their online brokerage account holders. Internet distributions will be allocated by the representative to underwriters and selling group members that may make Internet distributions on the same basis as other allocations.

We have agreed that we will not, subject to limited exceptions, (1) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, or file with the SEC a registration statement under the Securities Act relating to, any shares of our common stock or securities convertible into or exchangeable or exercisable for any shares of our common stock, or publicly disclose the intention to make any offer, sale, pledge, disposition or filing, or (2) enter into any swap or other agreement that transfers all or a portion of the economic consequences associated with the ownership of any shares of our common stock (regardless of whether any of these transactions are to be settled by the delivery of shares of our common stock, or such other securities, in cash or otherwise), in each case without the prior written consent of J.P. Morgan Securities LLC for a period of 180 days after the date of this prospectus. Notwithstanding the foregoing, if (1) during the last 17 days of the 180-day restricted period, we issue an earnings release or material news or a material event relating to our company occurs; or (2) prior to the expiration of the 180-day restricted period, we announce that we will release earnings results during the 16-day period beginning on the last day of the 180-day period, the restrictions described above shall continue to apply until the expiration of the 18-day period beginning on the issuance of the earnings release or the occurrence of the material news or material event.

All of our directors and executive officers, and certain of our significant stockholders have entered into lock up agreements with the underwriters prior to the commencement of this offering pursuant to which we and each of these persons or entities, subject to limited exceptions, for a period of 180 days after the date of this prospectus, may not, without the prior written consent of J.P. Morgan Securities LLC, (1) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, any shares of our common stock or any securities convertible into or exercisable or exchangeable for common stock (including, without limitation, common stock or such other securities which may be deemed to be beneficially owned by such persons in accordance with the rules and regulations of the SEC and securities which may be issued upon exercise of a stock option or warrant), or publicly disclose the intention to make any offer, sale, pledge or disposition,

(2) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of our common stock or such other securities, whether any such transaction described in clause (1) or (2) above is to be settled by delivery of our common stock or such other securities, in cash or otherwise or (3) make any demand for or exercise any right with respect to the registration of any shares of our common stock or any security convertible into or exercisable or exchangeable for our common stock. Notwithstanding the foregoing, if (1) during the last 17 days of the 180-day restricted period, we issue an earnings release or material news or a material event relating to our company occurs; or (2) prior to the expiration of the 180-day restricted period, we announce that we will release earnings results during the 16-day period beginning on the last day of the 180-day period, the restrictions described above shall continue to apply until the expiration of the 18-day period beginning on the issuance of the earnings release or the occurrence of the material news or material event.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act.

We are applying to have our common stock approved for listing on The NASDAQ Global Market under the symbol "MACK."

In connection with this offering, the underwriters may engage in stabilizing transactions, which involves making bids for, purchasing and selling shares of our common stock in the open market for the purpose of preventing or retarding a decline in the market price of our common stock while this offering is in progress. These stabilizing transactions may include making short sales of our common stock, which involves the sale by the underwriters of a greater number of our shares of common stock than they are required to purchase in this offering, and purchasing shares of our common stock on the open market to cover positions created by short sales. Short sales may be "covered" shorts, which are short positions in an amount not greater than the underwriters' over-allotment option referred to above, or may be "naked" shorts, which are short positions in excess of that amount. The underwriters may close out any covered short position either by exercising their over-allotment option, in whole or in part, or by purchasing shares in the open market. In making this determination, the underwriters will consider, among other things, the price of shares available for purchase in the open market compared to the price at which the underwriters may purchase shares through the over-allotment option. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of our common stock in the open market that could adversely affect investors who purchase in this offering. To the extent that the underwriters create a naked short position, they will purchase shares in the open market to cover the position.

The underwriters have advised us that, pursuant to Regulation M of the Securities Act, they may also engage in other activities that stabilize, maintain or otherwise affect the price of our common stock, including the imposition of penalty bids. This means that if the representative of the underwriters purchases shares of our common stock in the open market in stabilizing transactions or to cover short sales, the representative can require the underwriters that sold those shares as part of this offering to repay the underwriting discount received by them.

These activities may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a decline in the market price of our common stock, and, as a

result, the price of the common stock may be higher than the price that otherwise might exist in the open market. If the underwriters commence these activities, they may discontinue them at any time. The underwriters may carry out these transactions on The NASDAQ Global Market, in the over-the-counter market or otherwise.

Prior to this offering, there has been no public market for our common stock. The initial public offering price will be determined by negotiations between us and the representative of the underwriters. In determining the initial public offering price, we and the representative of the underwriters expect to consider a number of factors including:

- the information set forth in this prospectus and otherwise available to the representative;
- our prospects and the history and prospects for the industry in which we compete;
- an assessment of our management;
- our prospects for future earnings;
- the general condition of the securities markets at the time of this offering;
- the recent market prices of, and demand for, publicly traded common stock of generally comparable companies; and
- other factors deemed relevant by the underwriters and us.

Neither we nor the underwriters can assure investors that an active trading market will develop for our common stock, or that the shares will trade in the public market at or above the initial public offering price.

Other than in the United States, no action has been taken by us or the underwriters that would permit a public offering of the securities offered by this prospectus in any jurisdiction where action for that purpose is required. The securities offered by this prospectus may not be offered or sold, directly or indirectly, nor may this prospectus or any other offering material or advertisements in connection with the offer and sale of any such securities be distributed or published in any jurisdiction, except under circumstances that will result in compliance with the applicable rules and regulations of that jurisdiction. Persons into whose possession this prospectus comes are advised to inform themselves about and to observe any restrictions relating to the offering and the distribution of this prospectus. This prospectus does not constitute an offer to sell or a solicitation of an offer to buy any securities offered by this prospectus in any jurisdiction in which such an offer or a solicitation is unlawful.

Selling restrictions

European economic area

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a "Relevant Member State") an offer to the public of any shares which are the subject of the offering contemplated by this Prospectus (the "Shares") may not be made in that Relevant Member State, except that an offer to the public in that Relevant Member State of any Shares may be made at any time under the following exemptions under the Prospectus Directive, if they have been implemented in that Relevant Member State:

(a) to any legal entity which is a qualified investor as defined in the Prospectus Directive;

(b) to fewer than 100 or, if the Relevant Member State has implemented the relevant provision of the 2010 PD Amending Directive, 150, natural or legal persons (other than qualified investors as defined in the Prospectus Directive), as permitted under the Prospectus Directive, subject to obtaining the prior consent of representative of the underwriters for any such offer; or

(c) in any other circumstances falling within Article 3(2) of the Prospectus Directive, provided that no such offer of Shares shall result in a requirement for the publication by us or any underwriter of a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression an "offer to the public" in relation to any Shares in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and any Shares to be offered so as to enable an investor to decide to purchase any Shares, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State, the expression "Prospectus Directive" means Directive 2003/71/EC (and amendments thereto, including the 2010 PD Amending Directive, to the extent implemented in the Relevant Member State), and includes any relevant implementing measure in the Relevant Member State, and the expression "2010 PD Amending Directive" means Directive 2010/73/EU.

United Kingdom

Each underwriter has represented and agreed that:

(a) it has only communicated or caused to be communicated and will only communicate or cause to be communicated an invitation or inducement to engage in investment activity (within the meaning of Section 21 of the FSMA) received by it in connection with the issue or sale of the Shares in circumstances in which Section 21(1) of the FSMA does not apply to us; and

(b) it has complied and will comply with all applicable provisions of the FSMA with respect to anything done by it in relation to the Shares in, from or otherwise involving the United Kingdom.

Switzerland

The Shares may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange ("SIX") or on any other stock exchange or regulated trading facility in Switzerland. This document has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this document nor any other offering or marketing material relating to the Shares or the offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this document nor any other offering or marketing material relating to the offering, the Company, the Shares have been or will be filed with or approved by any Swiss regulatory authority. In particular, this document will not be filed with, and the offer of Shares will not be supervised by, the Swiss Financial Market Supervisory Authority ("FINMA"), and the offer of Shares has not been and will not be authorized under the Swiss Federal Act on Collective

Investment Schemes ("CISA"). The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of Shares.

Dubai international financial centre

This prospectus relates to an Exempt Offer in accordance with the Offered Securities Rules of the Dubai Financial Services Authority ("DFSA"). This prospectus is intended for distribution only to persons of a type specified in the Offered Securities Rules of the DFSA. It must not be delivered to, or relied on by, any other person. The DFSA has no responsibility for reviewing or verifying any documents in connection with Exempt Offers. The DFSA has not approved this prospectus nor taken steps to verify the information set forth herein and has no responsibility for the prospectus. The Shares to which this prospectus relates may be illiquid and/or subject to restrictions on their resale. Prospective purchasers of the Shares offered should conduct their own due diligence on the Shares. If you do not understand the contents of this prospectus you should consult an authorized financial advisor.

Certain of the underwriters and their affiliates have provided in the past to us and our affiliates and may provide from time to time in the future certain commercial banking, financial advisory, investment banking and other services for us and such affiliates in the ordinary course of their business, for which they have received and may continue to receive customary fees and commissions. In addition, from time to time, certain of the underwriters and their affiliates may effect transactions for their own account or the account of customers, and hold on behalf of themselves or their customers, long or short positions in our debt or equity securities or loans, and may do so in the future.

Legal matters

The validity of the shares of our common stock offered hereby is being passed upon for us by Wilmer Cutler Pickering Hale and Dorr LLP. Davis Polk & Wardwell LLP is acting as counsel for the underwriters in connection with this offering.

Experts

The financial statements as of December 31, 2010 and 2009 and for each of the three years in the period ended December 31, 2010 included in this prospectus have been so included in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

Where you can find more information

We have filed with the SEC a registration statement on Form S-1 under the Securities Act with respect to the shares of common stock we are offering to sell. This prospectus, which constitutes part of the registration statement, does not include all of the information contained in the registration statement and the exhibits, schedules and amendments to the registration statement. For further information with respect to us and our common stock, we refer you to the registration statement and to the exhibits and schedules to the registration statement. Statements contained in this prospectus about the contents of any contract, agreement or other document are not necessarily complete, and, in each instance, we refer you to the copy of the contract, agreement or other document filed as an exhibit to the registration statement. Each of these statements is qualified in all respects by this reference to such contract, agreement or other document.

You may read and copy the registration statement of which this prospectus is a part at the SEC's public reference room, which is located at 100 F Street, N.E., Room 1580, Washington, DC 20549. You can request copies of the registration statement by writing to the SEC and paying a fee for the copying cost. Please call the SEC at 1-800-SEC-0330 for more information about the operation of the SEC's public reference room. In addition, the SEC maintains an Internet website, which is located at http://www.sec.gov, that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC. You may access the registration statement of which this prospectus is a part at the SEC's Internet website. Upon completion of this offering, we will be subject to the information reporting requirements of the Exchange Act, and we will file reports, proxy statements and other information with the SEC.

Merrimack Pharmaceuticals, Inc.
Index to consolidated financial statements

Report of independent registered public accounting firm

To the Board of Directors and Stockholders of
Merrimack Pharmaceuticals, Inc.

In our opinion, the accompanying consolidated balance sheets and the related consolidated statements of operations, statements of convertible preferred stock, non-controlling interest and stockholders' deficit, and statements of cash flows present fairly, in all material respects, the financial position of Merrimack Pharmaceuticals, Inc. and its subsidiaries ("the Company") at December 31, 2010 and 2009, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2010 in conformity with accounting principles generally accepted in the United States of America. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits of these statements in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

/s/ PricewaterhouseCoopers LLP

Boston, Massachusetts
July 8, 2011

Merrimack Pharmaceuticals, Inc.
Consolidated balance sheets

(in thousands, except par value amounts)	December 31, 2009	December 31, 2010	March 31, 2011 Actual (unaudited)	March 31, 2011 Pro forma (unaudited)
Assets				
Current assets:				
Cash and cash equivalents	$ 58,387	$ 30,713	$ 32,595	$ 97,087
Restricted cash	95	—	—	—
Accounts receivable	1,770	3,745	8,618	8,618
Prepaid expenses and other current assets	1,259	1,830	3,154	3,154
Total current assets	61,511	36,288	44,367	108,859
Restricted cash	381	381	381	381
Property and equipment, net	6,491	7,458	6,785	6,785
Other assets	33	30	28	28
Intangible assets, net	3,125	2,805	2,725	2,725
In-process research and development	7,010	7,010	7,010	7,010
Goodwill	3,605	3,605	3,605	3,605
Total assets	**$ 82,156**	**$ 57,577**	**$ 64,901**	**$ 129,393**
Liabilities, Convertible Preferred Stock, Non-controlling Interest and Stockholders' Equity (Deficit)				
Current liabilities:				
Accounts payable	$ 2,270	$ 1,440	$ 1,123	$ 1,123
Accrued expenses	6,232	7,256	7,475	7,475
Capital lease obligations	847	443	312	312
Deferred revenue	5,076	6,462	6,537	6,537
Deferred lease benefit	394	454	421	421
Deferred tax incentives	—	270	512	512
Series G proceeds	—	—	12,508	—
Series F amount	69,275	—	—	—
Accrued dividends	—	—	—	4,263
Total current liabilities	84,094	16,325	28,888	20,643
Capital lease obligations	508	48	10	10
Deferred revenues	55,861	67,320	73,027	73,027
Deferred lease benefits	426	102	36	36
Deferred tax incentives	—	810	1,712	1,712
Contingent consideration	178	—	—	—
Convertible preferred stock warrants	578	652	1,368	—
Total liabilities	$ 141,645	$ 85,257	$ 105,041	$ 95,428
Commitments and contingencies (Note 18)				
Convertible preferred stock	131,273	191,257	191,264	—
Non-controlling interest	—	1,027	949	949
Stockholders' equity (deficit):				
Common stock, 90,000 authorized no par shares at December 31, 2009, 125,000 authorized $0.01 par value shares at December 31, 2010 and March 31, 2011 (actual and pro forma, unaudited), 10,868, 11,073 and 11,215 issued and outstanding at December 31, 2009 and 2010, and March 31, 2011 (actual, unaudited), respectively, and 77,469 shares at March 31, 2011 (pro forma, unaudited)	17,364	111	112	775
Additional paid-in capital	8,744	45,096	46,163	309,501
Common stock warrants	4,642	6,445	6,445	7,813
Accumulated deficit	(221,512)	(271,616)	(285,073)	(285,073)
Total stockholders' equity (deficit)	$ (190,762)	$ (219,964)	$ (232,353)	$ 33,016
Total liabilities, convertible preferred stock, non-controlling interest and stockholders' equity (deficit)	**$ 82,156**	**$ 57,577**	**$ 64,901**	**$ 129,393**

The accompanying notes are an integral part of these consolidated financial statements.

Merrimack Pharmaceuticals, Inc.
Consolidated statements of operations

(in thousands, except per share amounts)	Years ended December 31, 2008	2009	2010	Three-months ended March 31, 2010 (unaudited)	2011 (unaudited)
Research and development revenues	$ 365	$ 2,148	$ 20,305	$ 3,969	$ 6,461
Operating expenses					
Research and development	34,528	37,658	58,278	13,415	18,001
General and administrative	8,836	12,178	11,381	2,453	3,101
Contingent consideration	—	—	(178)	—	—
Total operating expenses	43,364	49,836	69,481	15,868	21,102
Loss from operations	(42,999)	(47,688)	(49,176)	(11,899)	(14,641)
Other income and expenses					
Interest income	1,243	81	74	14	14
Interest expense	(4,403)	(4,909)	(3,726)	(1,201)	(6)
Other, net	607	41	2,669	22	1,098
Net loss before income taxes and non-controlling interest	(45,552)	(52,475)	(50,159)	(13,064)	(13,535)
Benefit from income taxes	—	3,402	—	—	—
Net loss	(45,552)	(49,073)	(50,159)	(13,064)	(13,535)
Less net loss attributable to non-controlling interest	—	—	(55)	—	(78)
Net loss attributable to Merrimack Pharmaceuticals, Inc.	$ (45,552)	$ (49,073)	$ (50,104)	$ (13,064)	$ (13,457)
Net loss per share available to common stockholders—basic and diluted	$ (8.17)	$ (7.28)	$ (5.57)	$ (1.31)	$ (1.35)
Weighted-average common shares used in computing net loss per share available to common stockholders—basic and diluted	6,199	7,387	10,994	10,868	11,106
Pro forma net loss per share available to common stockholders—basic and diluted (unaudited)			$		$
Weighted-average common shares used in computing pro forma net loss per share available to common stockholders—basic and diluted (unaudited)					

The accompanying notes are an integral part of these consolidated financial statements.

Merrimack Pharmaceuticals, Inc.
Consolidated statements of convertible preferred stock, non-controlling interest and stockholders' deficit

(in thousands)	Series B-F convertible preferred stock Shares	Series B-F convertible preferred stock Amount	Non-controlling interest	Common stock Shares	Common stock Amount	Additional paid-in capital	Common stock warrants	Accumulated deficit	Total stockholders' deficit
Balance at January 1, 2008	42,028	$ 132,739	$ —	6,180	$ 7,822	$ 3,023	$ 4,618	$ (126,887)	$ (111,424)
Exercise of employee stock options	—	—	—	43	67	—	—	—	67
Share-based compensation	—	—	—	—	—	2,417	—	—	2,417
Issuance of common stock warrants in connection with equipment financing loans	—	—	—	—	—	—	24	—	24
Net loss	—	—	—	—	—	—	—	(45,552)	(45,552)
Balance at December 31, 2008	42,028	$ 132,739	$ —	6,223	$ 7,889	$ 5,440	$ 4,642	$ (172,439)	$ (154,468)
Exercise of employee stock options	—	—	—	262	183	—	—	—	183
Share-based compensation	—	—	—	—	—	3,304	—	—	3,304
Return of Series C stock as a result of license agreement	(662)	(1,469)	—	—	—	—	—	—	—
Issuance of Series C stock as a result of warrant exercise	2	3	—	—	—	—	—	—	—
Issuance of common stock in connection with acquisition	—	—	—	4,383	9,292	—	—	—	9,292
Net loss	—	—	—	—	—	—	—	(49,073)	(49,073)
Balance at December 31, 2009	41,368	$ 131,273	$ —	10,868	$ 17,364	$ 8,744	$ 4,642	$ (221,512)	$ (190,762)
Exercise of employee stock options	—	—	—	205	294	—	—	—	294
Share-based compensation	—	—	—	—	—	4,551	—	—	4,551
Issuance of Series F stock	11,776	59,973	—	—	—	—	—	—	—
Issuance of Series C stock as a result of warrant exercises	4	11	—	—	—	—	—	—	—
Series F amount interest	—	—	—	—	—	12,974	—	—	12,974
Common stock warrant modification	—	—	—	—	—	(1,803)	1,803	—	—
Change in par value	—	—	—	—	(17,547)	17,547	—	—	—
Ownership change in non-controlling interest	—	—	1,082	—	—	3,083	—	—	3,083
Loss attributable to non-controlling interest	—	—	(55)	—	—	—	—	55	55
Net loss	—	—	—	—	—	—	—	(50,159)	(50,159)
Balance at December 31, 2010	53,148	$ 191,257	$ 1,027	11,073	$ 111	$ 45,096	$ 6,445	$ (271,616)	$ (219,964)
Exercise of employee stock options (unaudited)	—	—	—	142	1	47	—	—	48
Share-based compensation (unaudited)	—	—	—	—	—	1,020	—	—	1,020
Issuance of Series C stock as a result of	1	7	—	—	—	—	—	—	—

warrant exercise (unaudited)									
Loss attributable to non-controlling interest (unaudited)	—	—	(78)	—	—	—	—	78	78
Net loss (unaudited)	—	—	—	—	—	—	—	(13,535)	(13,535)
Balance at March 31, 2011 (unaudited)	53,149	$ 191,264	$ 949	11,215	$ 112	$ 46,163	$ 6,445	$ (285,073)	$ (232,353)

The accompanying notes are an integral part of these consolidated financial statements.

Merrimack Pharmaceuticals, Inc.
Consolidated statements of cash flows

(in thousands)	Years ended December 31, 2008	2009	2010	Three-months ended March 31, 2010	2011
				(unaudited)	(unaudited)
Cash flows from operating activities					
Net loss	$ (45,552)	$ (49,073)	$ (50,159)	$ (13,064)	$ (13,535)
Adjustments to reconcile net loss to net cash (used in) provided by operating activities					
Noncash benefit on release of tax valuation allowance	—	(3,402)	—	—	—
Noncash interest expense	4,223	4,805	3,673	1,185	—
(Gain) loss on mark-to-market on preferred stock warrants and contingent consideration	(514)	10	(104)	(19)	716
(Gain) loss on disposal of property and equipment	(18)	32	(26)	—	—
Amortization of premiums on marketable securities	(261)	—	—	—	—
Amortization of deferred lease benefits and tax incentives	(131)	(317)	(751)	(98)	(167)
Depreciation and amortization	2,058	2,755	4,379	980	1,316
Share-based compensation	2,616	3,304	4,551	1,015	1,020
Changes in operating assets and liabilities, net of effect of acquisition					
Accounts receivable	—	(1,770)	(1,975)	(757)	(4,873)
Prepaid expenses and other current assets	(148)	(94)	(571)	(1,828)	(1,324)
Accounts payable	(997)	(220)	(830)	407	(317)
Accrued expenses	934	2,768	1,024	(2,864)	219
Deferred revenues	—	59,469	12,845	(230)	5,782
Deferred lease benefits	—	786	217	—	—
Deferred tax incentive	—	—	1,350	1,350	1,212
Other assets and liabilities, net	(219)	2	8	(2)	7
Net cash (used in) provided by operating activities	(38,009)	19,055	(26,369)	(13,925)	(9,944)
Cash flows from investing activities					
Purchase of property and equipment	(1,528)	(5,038)	(5,025)	(470)	(563)
Proceeds from sale of property and equipment	18	—	26	—	—
Purchase of marketable securities	(3,447)	—	—	—	—
Sale of marketable securities	24,650	—	—	—	—
Cash acquired in acquisition	—	92	—	—	—
(Assignment) release of restricted cash	(192)	95	95	95	—
Other investing activities, net	—	—	4	—	2
Net cash provided by (used in) investing activities	19,501	(4,851)	(4,900)	(375)	(561)
Cash flows from financing activities					
Proceeds received in advance of Series G issuance	—	—	—	—	12,508
Proceeds received in advance of Series F issuance	24,499	—	—	—	—
Proceeds from issuance of common stock	67	183	294	—	48
Proceeds from issuance of convertible preferred stock of Silver Creek Pharmaceuticals, Inc.	—	—	4,165	—	—
Principal payment on capital lease obligations	(1,021)	(974)	(864)	(212)	(169)
Proceeds from sale-lease back	675	—	—	—	—
Principal payment of long-term debt	(1,024)	—	—	—	—
Net cash provided by (used in) financing activities	23,196	(791)	3,595	(212)	12,387
Net increase (decrease) in cash and cash equivalents	4,688	13,413	(27,674)	(14,512)	1,882
Cash and cash equivalents, beginning of period	40,286	44,974	58,387	58,387	30,713
Cash and cash equivalents, end of period	$ 44,974	$ 58,387	$ 30,713	$ 43,875	$ 32,595
Noncash financing and investing activities					
Accrued interest on Series F amount relieved to additional paid-in capital (Note 13)	$ —	$ —	$ 12,974	$ —	$ —
Issuance of shares from Series F amount (Note 13)	—	—	59,973	—	—
Series F convertible preferred stock issuable for consulting services rendered	199	—	—	—	—
Series C convertible preferred stock received for technology license	—	1,469	—	—	—
Fair value of assets acquired in acquisition	—	10,252	—	—	—
Fair value of liabilities assumed in acquisition	—	4,479	—	—	—
Fair value of equity issued in acquisition	—	9,292	—	—	—
Supplemental disclosure of cash flows					
Cash paid for interest	$ 219	$ 109	$ 55	$ 19	$ 6

The accompanying notes are an integral part of these consolidated financial statements.

Merrimack Pharmaceuticals, Inc.
Notes to consolidated financial statements
December 31, 2008, 2009, and 2010
(information as of March 31, 2011 and for the three-months ended March 31, 2010 and 2011 is unaudited)

1. Nature of the business

Merrimack Pharmaceuticals, Inc. (the "Company") is a biopharmaceutical company discovering, developing and preparing to commercialize innovative medicines consisting of novel therapeutics paired with companion diagnostics. The Company has four targeted therapeutic oncology candidates in clinical development (MM-398, MM-121, MM-111 and MM-302), one additional targeted therapeutic oncology candidate expected to enter clinical development in the third quarter of 2011 (MM-151), multiple product candidates in preclinical development and a discovery effort advancing additional candidate medicines. The Company uses its interdisciplinary Network Biology approach in drug discovery and development. The Company was incorporated in the Commonwealth of Massachusetts in 1993 and reincorporated in the State of Delaware in October 2010.

The Company is subject to risks and uncertainties common to companies in the biopharmaceutical industry, including, but not limited to, ability to secure additional capital to fund operations, development by competitors of new technological innovations, dependence on collaborative arrangements, protection of proprietary technology, compliance with government regulations and dependence on key personnel. Product candidates currently under development will require significant additional research and development efforts, including extensive preclinical and clinical testing and regulatory approval prior to commercialization. These efforts require significant amounts of additional capital, adequate personnel infrastructure and extensive compliance reporting capabilities.

The accompanying consolidated financial statements have been prepared on a basis which assumes that the Company will continue as a going concern and which contemplates the realization of assets and satisfaction of liabilities and commitments in the normal course of business. As of December 31, 2010 and March 31, 2011, the Company had cash and cash equivalents of $30,713,000 and $32,595,000, respectively. Cash and cash equivalents as of March 31, 2011 included approximately $12.5 million of cash received in advance of the closing of a Series G convertible preferred stock financing. On April 6, 2011, the Company raised approximately $77 million by issuing 11 million shares of Series G convertible preferred stock. The Company expects its existing cash and cash equivalents on hand at December 31, 2010 together with the proceeds from its Series G financing to be sufficient to fund operations through at least the second quarter of 2012. However, the Company may seek additional funding through public or private financings, or existing or new collaboration arrangements. The Company may not be able to obtain financing on acceptable terms or at all, and the Company may not be able to enter into additional collaborative arrangements. Arrangements with collaborators or others may require the Company to relinquish rights to certain of its technologies or product candidates. The terms of any financing may adversely affect the holdings or the rights of the Company's stockholders. If the Company needs additional funds and it is unable to obtain funding on a timely basis, the Company may need to significantly

curtail its research and development programs in an effort to provide sufficient funds to continue its operations, which could adversely affect its business prospects.

2. Summary of significant accounting policies

Significant accounting policies followed by the Company in the preparation of its consolidated financial statements are as follows:

Unaudited interim financial data

The accompanying unaudited March 31, 2011 consolidated balance sheet, the consolidated statements of operations and cash flows for the three-months ended March 31, 2010 and 2011, and the consolidated statements of convertible preferred stock, non-controlling interest and stockholders' deficit for the three-months ended March 31, 2011 and the related interim information contained within the notes to the consolidated financial statements have been prepared in accordance with the rules and regulations of the Securities and Exchange Commission for interim financial information. Accordingly, they do not include all of the information and the notes required by accounting principles generally accepted in the United States of America for complete financial statements. In the opinion of management, the unaudited interim consolidated financial statements reflect all adjustments, consisting of normal and recurring adjustments, necessary for the fair statement of the Company's financial position at March 31, 2011 and results of its operations and its cash flows for the three-months ended March 31, 2010 and 2011. The results for the three-months ended March 31, 2011 are not necessarily indicative of future results.

Unaudited pro forma balance sheet and pro forma loss per common share

On June 28, 2011, the Company's Board of Directors authorized management of the Company to file a registration statement with the Securities and Exchange Commission permitting the Company to sell shares of its common stock to the public. The unaudited pro forma balance sheet as of March 31, 2011 reflects the issuance and sale in April 2011 of an aggregate of 11,000,000 shares of Series G convertible preferred stock at a price per share of $7.00 for an aggregate purchase price of $77.0 million and the conversion of all Series B, Series C, Series D, Series E, Series F and Series G convertible preferred stock outstanding as of that date into 66,254,000 shares of common stock, occurring immediately prior to the closing of the Company's proposed initial public offering. In addition, the unaudited pro forma balance sheet as of March 31, 2011 reflects the impact of the reclassification of warrants to purchase convertible preferred stock into warrants to purchase common stock immediately prior to the closing of the Company's proposed initial public offering and $4,263,000 of accrued dividends payable to the holders of Series B convertible preferred stock upon conversion into common stock.

Unaudited pro forma net loss per share is computed using the weighted-average number of common shares outstanding after giving effect to the pro forma effect of the conversion of all convertible preferred stock, including the Series G convertible preferred stock that was issued in April 2011, during the year ended December 31, 2010 and the three-months ended March 31, 2011 into shares of the Company's common stock as if such conversion had occurred at the beginning of the period presented, or the date of original issuance, if later. The numerator in the pro forma basic and diluted net loss per share calculation has been adjusted to remove gains and losses resulting from remeasurements of the outstanding convertible

preferred stock warrant liabilities through March 31, 2011 as these warrants will be converted into warrants to purchase common stock immediately prior to the closing of the Company's proposed initial public offering. The denominator in the pro forma basic and diluted net loss per share calculation has been adjusted to reflect additional shares of common stock related to preferred stock dividends of $4,263,000.

Principles of consolidation

These consolidated financial statements include the accounts of the Company, its wholly-owned subsidiary Hermes Biosciences, Inc. ("Hermes"), which has subsequently been merged with and into the Company, and its 74% majority-owned subsidiary Silver Creek Pharmaceuticals, Inc. ("Silver Creek"). All intercompany transactions and balances have been eliminated in consolidation.

Use of estimates

The accompanying consolidated financial statements have been prepared in conformity with generally accepted accounting principles ("GAAP") in the United States of America. GAAP requires the Company's management to make estimates and judgments that may affect the reported amounts of assets, liabilities, revenues, expenses and related disclosures. The Company bases estimates and judgments on historical experience and on various other factors that it believes to be reasonable under the circumstances. The significant estimates in these consolidated financial statements include revenue recognition, useful lives with respect to long-lived assets and intangibles, valuation of stock options, convertible preferred stock warrants, contingent consideration, accrued expenses, intangible assets, goodwill, in-process research and development and tax valuation reserves. The Company's actual results may differ from these estimates under different assumptions or conditions. The Company evaluates its estimates on an ongoing basis. Changes in estimates are reflected in reported results in the period in which they become known by the Company's management.

Segment and geographic information

Operating segments are defined as components of an enterprise engaging in business activities for which discrete financial information is available and regularly reviewed by the chief operating decision maker in deciding how to allocate resources and in assessing performance. The Company views its operations and manages its business in one operating segment and the Company operates in only one geographic segment.

Cash, cash equivalents and restricted cash

Cash and cash equivalents are short-term, highly liquid investments with an original maturity of three months or less at the date of purchase. Investments qualifying as cash equivalents primarily consist of money market funds.

Cash accounts with any type of restriction are classified as restricted cash. If restrictions are expected to be lifted in the next twelve months, the restricted cash account is classified as current. As of December 31, 2009 and 2010 and March 31, 2011, the Company recorded restricted cash of $476,000, $381,000 and $381,000, respectively.

Concentration of credit risk

Financial instruments that subject the Company to credit risk consist primarily of cash and cash equivalents and accounts receivable. The Company places its cash and cash equivalents in accredited financial institutions and therefore the Company's management believes these funds

are subject to minimal credit risk. The Company has no significant off-balance sheet concentrations of credit risk such as foreign currency exchange contracts, option contracts or other hedging arrangements. For both the years ended December 31, 2009 and 2010, Sanofi represented 98% of research and development revenues. For the three-months ended March 31, 2010 and 2011, Sanofi represented 92% and 99% of research and development revenues, respectively. As of December 31, 2009 and 2010, and March 31, 2011, Sanofi represented 91%, 98% and 99% of accounts receivable, respectively.

Property and equipment

Property and equipment are recorded at cost and depreciated when placed into service using the straight-line method, based on their estimated useful lives as follows:

Asset classification	Estimated useful life (in years)
Lab equipment	3
IT equipment	3 - 7
Leaseholds improvements	Lesser of useful life or lease term
Furniture and fixtures	3

Upon retirement or sale, the cost of assets disposed of and the related accumulated depreciation are removed from the accounts and any resulting gain or loss is recognized. Repairs and maintenance costs are expensed as incurred.

The Company reviews its long-lived assets for impairment whenever events or changes in business circumstances indicate that the carrying amount of assets may not be fully recoverable or that the useful lives of these assets are no longer appropriate. Each impairment test is based on a comparison of the undiscounted cash flow to the recorded value of the asset. If an impairment is indicated, the asset will be written down to its estimated fair value on a discounted cash flow basis.

Government contracts and grants

Funds received pursuant to awarded grants or cost reimbursement contracts are recorded as a liability and subsequently recognized as revenue as the Company performs the underlying research and development activities.

In 2006, the Company was awarded a federally funded research grant from the National Cancer Institute with a total value of $750,000. This grant supported studies related to antibody microarrays for cancer diagnostics and was completed during 2008. Revenue of $365,000, $0 and $0 was recognized for costs reimbursed under this grant for the years ended December 31, 2008, 2009 and 2010, respectively. No grant revenue was recognized during the three-months ended March 31, 2010 or 2011.

Non-controlling interest

Non-controlling interest represents the non-controlling stockholders' proportionate share of preferred stock and net loss of the Company's majority-owned consolidated subsidiary Silver Creek. On August 20, 2010, the Company acquired a controlling interest in Silver Creek (Note 6). The non-controlling stockholders' proportionate share of the preferred stock in Silver Creek of $1,027,000 and $949,000 was reflected as non-controlling interest in the Company's

consolidated balance sheets as of December 31, 2010 and March 31, 2011, respectively, as a component of mezzanine equity.

Revenue recognition

The Company enters into biopharmaceutical product development agreements with collaborative partners for the research and development of therapeutic and diagnostic products. The terms of the agreements may include nonrefundable signing and licensing fees, funding for research, development and manufacturing, milestone payments and royalties on any product sales derived from collaborations. These multiple element arrangements are analyzed to determine whether the deliverables can be separated or whether they must be accounted for as a single unit of accounting.

The Company recognizes upfront license payments as revenue upon delivery of the license only if the license has stand-alone value and the fair value of the undelivered performance obligations can be determined. If the fair value of the undelivered performance obligations can be determined, such obligations are accounted for separately as the obligations are fulfilled. If the license is considered to either not have stand-alone value or have stand-alone value but the fair value of any of the undelivered performance obligations cannot be determined, the arrangement is accounted for as a single unit of accounting and the license payments and payments for performance obligations are recognized as revenue over the estimated period of when the performance obligations will be performed.

Whenever the Company determines that an arrangement should be accounted for as a single unit of accounting, it must determine the period over which the performance obligations will be performed and revenue will be recognized. If the Company cannot reasonably estimate the timing and the level of effort to complete its performance obligations under the arrangement, then revenue under the arrangement is recognized on a straight-line basis over the period the Company is expected to complete its performance obligations.

The Company's collaboration agreements may include additional payments upon the achievement of performance-based milestones. As milestones are achieved, a portion of the milestone payment, equal to the percentage of the total time that the Company has performed the performance obligations to date over the total estimated time to complete the performance obligations, multiplied by the amount of the milestone payment, will be recognized as revenue upon achievement of such milestone. The remaining portion of the milestone will be recognized over the remaining performance period. Milestones that are tied to regulatory approval are not considered probable of being achieved until such approval is received. Milestones tied to counter-party performance are not included in the Company's revenue model until the performance conditions are met.

Royalty revenue will be recognized upon the sale of the related products provided the Company has no remaining performance obligations under the arrangement.

Research and development expenses

Research and development expenses are charged to expense as incurred. Research and development expenses comprise costs incurred in performing research and development activities, including personnel-related costs, stock-based compensation, facilities, research related overhead, clinical trial costs, contracted services, manufacturing, license fees and other external costs. The Company accounts for nonrefundable advance payments for goods and

services that will be used in future research and development activities as expenses when the service has been performed or when the goods have been received rather than when the payment is made.

Share-based compensation

The Company expenses the fair value of employee stock options over the vesting period. Compensation expense is measured using the fair value of the award at the grant date, net of estimated forfeitures, and is adjusted annually to reflect actual forfeitures. The fair value of each stock-based award is estimated using the Black-Scholes option valuation model and is expensed straight-line over the vesting period.

The Company records stock options issued to nonemployees at fair value, periodically remeasures to reflect the current fair value at each reporting period, and recognizes expense over the related service period. When applicable, these equity instruments are accounted for based on the fair value of the consideration received or the fair value of the equity instrument issued, whichever is more reliably measurable.

Convertible preferred stock

Preferred stock that may be redeemed by the holder based on the occurrence of events not under the Company's control is initially recorded at the proceeds received, net of issuance costs and warrants, where applicable. Subsequently, if redemption is probable, the carrying value is adjusted to its redemption value at each balance sheet date. If redemption is not certain, the carrying value is not adjusted to its full redemption value until redemption is probable.

Accumulated other comprehensive income (loss)

GAAP establishes standards for reporting and displaying a full set of general purpose financial statements to be expanded to include the reporting of comprehensive income, which includes net income and other comprehensive income. For all periods presented the comprehensive loss was equal to the net loss.

Convertible preferred stock warrants

The Company accounts for freestanding warrants as liabilities at their fair value. The Company measures the fair value of the preferred stock warrants at the end of each reporting period and records the change in fair value to other income (expense). For the years ended December 31, 2008, 2009 and 2010, the Company recorded other income (expense) of $514,000, $(10,000) and $(74,000), respectively. For the three-months ended March 31, 2010 and 2011, the Company recorded other income (expense) of $19,000 and $(716,000), respectively.

Other income (expense)

The Company records gains and losses on the change in value and time to expiration of preferred stock warrants, the recognition of federal and state sponsored tax incentives and other one-time income or expense related items in other income (expense) on the Company's consolidated statement of operations. Other income for the three-months ended March 31, 2011 included a cash settlement of $1.8 million from a former service provider.

Income taxes

The Company accounts for income taxes under the asset and liability method. Under this method, deferred tax assets and liabilities are recognized for the estimated future tax consequences attributable to differences between financial statement carrying amounts of existing assets and liabilities and their respective tax bases. Deferred tax assets and liabilities are measured using enacted rates in effect for the year in which these temporary differences are expected to be recovered or settled. Valuation allowances are provided if based on the weight of available evidence, it is more likely than not that some or all of the deferred tax assets will not be realized.

The Company provides reserves for potential payments of tax to various tax authorities related to uncertain tax positions and other issues. Reserves are based on a determination of whether and how much of a tax benefit taken by the Company in its tax filing is more likely than not to be realized following resolution of any potential contingencies present related to the tax benefit. Potential interest and penalties associated with such uncertain tax positions are recorded as components of income tax expense. To date, the Company has not taken any uncertain tax positions or recorded any reserves, interest or penalties.

Goodwill and intangible assets

Goodwill and indefinite-lived intangible assets, including in-process research and development, are evaluated for impairment on an annual basis or more frequently if an indicator of impairment is present. No impairment of goodwill or indefinite-lived intangible assets resulted from the Company's most recent evaluation which occurred in the third quarter of 2010. The Company's next annual impairment evaluation will be made in the third quarter of 2011 unless indicators arise that would require the Company to evaluate at an earlier date. The Company commences amortization of indefinite-lived intangible assets once the assets have reached technological feasibility or are determined to have an alternative future use and amortizes the assets over their estimated future life.

Definite-lived intangible assets, such as core technology, are evaluated for impairment whenever events or circumstances indicate that the carrying value may not be fully recoverable. Definite-lived intangible assets are separate from goodwill and indefinite-lived intangible assets and are deemed to have a definite life. The Company amortizes these assets over their estimated useful life.

Reclassifications

Certain prior period amounts have been reclassified to be consistent with the current year presentation. In 2009, certain general and administrative expenses were misclassified in the consolidated statement of operations between the research and development and general and administrative expense lines. Research and development expense was overstated by $718,000 and the general and administrative expense was understated by the same amount. The Company revised the consolidated statement of operations for the year ended December 31, 2009 to correct this immaterial error in classification. This revision does not impact the consolidated balance sheets or the consolidated statements of cash flows for any periods.

Recent accounting pronouncements

In October 2009, the Financial Accounting Standards Board ("FASB") issued Accounting Standard Update ("ASU") No. 2009-13, *Multiple Deliverable Revenue Arrangements* ("ASU

2009-13"), which amends existing revenue recognition accounting pronouncements for multiple-deliverable revenue arrangements. ASU 2009-13 provides accounting principles and application guidance on whether multiple deliverables exist, how the arrangement should be separated and the consideration allocated. ASU 2009-13 eliminates the requirement to establish the fair value of undelivered products and services and instead provides for separate revenue recognition based upon management's estimate of the selling price for an undelivered item in circumstances when there is no other means to determine the fair value of that undelivered item. Multiple-deliverable revenue arrangement guidance previously required that the fair value of the undelivered item be the price of the item either sold in a separate transaction between unrelated third parties or the price charged for each item when the item is sold separately by the vendor. This was difficult to determine when the product was not individually sold because of its unique features. Under the previous guidance, if the fair value of all of the elements in the arrangement was not determinable, then revenue was deferred until all of the items were delivered or fair value was determined. ASU 2009-13 was effective prospectively for revenue arrangements entered into or materially modified in fiscal years beginning on or after June 15, 2010. The Company adopted this standard on a prospective basis on January 1, 2011 with no impact.

In April 2010, the FASB issued ASU No. 2010-17, *Revenue Recognition—Milestone Method* ("ASU 2010-17"). ASU 2010-17 provides guidance in applying the milestone method of revenue recognition to research or development arrangements. Under this guidance companies may recognize revenue contingent upon the achievement of a milestone in its entirety, in the period in which the milestone is achieved, only if the milestone meets all the criteria within the guidance to be considered substantive. ASU 2010-17 is effective on a prospective basis for research and development milestones achieved in fiscal years, beginning on or after June 15, 2010. The Company adopted this standard on a prospective basis on January 1, 2011 with no impact.

3. Net loss per common share

Basic net loss per share is calculated by dividing the net loss attributable to common stockholders by the weighted-average number of common shares outstanding during the period, without consideration for common stock equivalents. Diluted net loss per share is computed by dividing the net loss attributable to common stockholders by the weighted-average number of common share equivalents outstanding for the period determined using the treasury-stock method. For purposes of this calculation, convertible preferred stock, stock options and warrants are considered to be common stock equivalents and are only included in the calculation of diluted net loss per share when their effect is dilutive.

The following table presents the computation of basic and diluted net loss per share available to common stockholders and pro forma net loss per share available to common stockholders (unaudited):

(in thousands, except per share amount)	Years ended December 31, 2008	2009	2010	Three-months ended March 31, 2010 (unaudited)	2011 (unaudited)
Net Loss Per Share:					
Numerator:					
Net loss attributable to Merrimack Pharmaceuticals, Inc.	$ (45,552)	$ (49,073)	$ (50,104)	$ (13,064)	$ (13,457)
Plus: Unaccreted dividends on convertible preferred stock	(5,100)	(4,684)	(11,185)	(1,173)	(1,537)
Net loss available to common stockholders—basic and diluted	(50,652)	(53,757)	(61,289)	(14,237)	(14,994)
Denominator:					
Weighted-average common shares—basic and diluted	6,199	7,387	10,994	10,868	11,106
Net loss per share available to common stockholders—basic and diluted	$ (8.17)	$ (7.28)	$ (5.57)	$ (1.31)	$ (1.35)
Pro Forma Net Loss Per Share (unaudited):					
Numerator:					
Net loss attributable to Merrimack Pharmaceuticals, Inc			$ (50,104)		$ (13,457)
Less:					
Pro forma adjustment to reverse the mark-to-market adjustment related to the convertible preferred stock warrant liability			74		716
Net loss used to compute pro forma net loss per share available to common stockholders			$ (50,030)		$ (12,741)
Denominator:					
Weighted-average number of common shares used in net loss per share available to common stockholders—basic and diluted			10,994		11,106
Plus:					
Pro forma adjustments to reflect assumed weighted-average effect of conversion of convertible preferred stock					
Pro forma adjustment to reflect additional shares of common stock related to preferred stock dividends declared in excess of earnings of $4,263					
Weighted-average shares used to compute pro forma net loss per share available to common stockholders—basic and diluted					
Pro forma net loss per share available to common stockholders basic and diluted			$		$

The following potentially dilutive securities have been excluded from the computation of diluted weighted average shares outstanding as of December 31, 2008, 2009 and 2010 and March 31, 2010 and 2011 as the Company recorded a net loss in all periods and, therefore, they would be anti-dilutive:

	Years ended December 31,			Three-months ended March 31,	
(in thousands)	2008	2009	2010	2010	2011
				(unaudited)	(unaudited)
Convertible preferred stock	42,028	41,368	53,148	41,368	53,149
Options to purchase common stock	11,483	14,660	16,214	14,862	15,939
Preferred stock warrants	323	317	306	317	304
Common stock warrants	2,937	2,937	2,937	2,937	2,937

4. License and collaboration agreements

Sanofi

On September 30, 2009, the Company entered into a license and collaboration agreement with Sanofi for the development and commercialization of a drug candidate being developed by the Company under the name MM-121. The agreement became effective on November 10, 2009 and Sanofi paid the Company a nonrefundable, noncreditable upfront license fee of $60 million. During the third quarter of 2010, the Company received a milestone payment of $10 million associated with the dosing of the first patient in a Phase 2 clinical trial. The Company is eligible to receive future development, regulatory and sales milestone payments as well as future royalty payments depending on the success of MM-121.

Under the agreement, Sanofi is responsible for all MM-121 development and manufacturing costs. The Company retained the right to participate in the development of MM-121 through Phase 2 proof of concept trials. Sanofi reimburses the Company for direct costs incurred in development and compensates the Company for its internal development efforts based on a full time equivalent ("FTE") rate. These development services are considered a separate unit of accounting as they are set at the Company's option, have stand-alone value and the FTE rate is considered fair value. Therefore, the Company recognizes cost reimbursements for MM-121 development services as earned. Also as part of the agreement, the Company manufactures certain quantities of MM-121. Sanofi reimburses the Company for direct costs incurred in manufacturing and compensates the Company for its internal manufacturing efforts based on a FTE rate. The Company also has the option to co-promote MM-121 in the United States.

The Company applied revenue recognition guidance to determine whether the performance obligations under this collaboration including the license, the right to future technology, back-up compounds, participation on steering committees and manufacturing services could be accounted for separately or as a single unit of accounting. The Company determined that these performance obligations represented a single unit of accounting. As the Company cannot reasonably estimate its level of effort over the collaboration, the Company recognizes revenue from the upfront payment, milestone payment and manufacturing services payments using the contingency-adjusted performance model over the expected development period, which is currently estimated to be 12 years from the effective date of the agreement. Under this model, when a milestone is earned or manufacturing services are rendered and product is delivered,

revenue is immediately recognized on a pro-rata basis in the period the milestone was achieved or product was delivered based on the time elapsed from the effective date of the agreement. Thereafter, the remaining portion is recognized on a straight-line basis over the remaining development period.

During the years ended December 31, 2009 and 2010, and the three-months ended March 31, 2010 and 2011, the Company recognized revenue based on the following components of the Sanofi agreement:

	Years ended December 31,		Three-months ended March 31,	
(in thousands)	**2009**	**2010**	**2010**	**2011**
			(unaudited)	**(unaudited)**
Upfront payment	$ 694	$ 5,000	$ 1,250	$ 1,250
Milestone payment	—	949	—	208
Development services	1,410	13,279	2,362	4,705
Manufacturing services and other	—	630	34	255
Total	$ 2,104	$ 19,858	$ 3,646	$ 6,418

As of December 31, 2009 and 2010 and March 31, 2011, the Company had deferred revenue of $59,505,000, $72,426,000 and $78,227,000, respectively, related to the collaboration. As of December 31, 2009 and 2010 and March 31, 2011, the Company had accounts receivable of $1,610,000, $3,683,000 and $8,554,000, respectively, under the collaboration of which $783,000, $2,796,000 and $2,180,000 were unbilled as of December 31, 2009 and 2010 and March 31, 2011, respectively.

GTC Biotherapeutics, Inc.

In July 2009, the Company entered into a license agreement with GTC Biotherapeutics, Inc. ("GTC") for the development of MM-093 by GTC. As consideration, GTC returned 662,000 shares of the Company's Series C convertible preferred stock to the Company. The Company determined the fair value of the consideration transferred to be $1,469,000. The Company applied revenue recognition guidance to determine that the performance obligations under this agreement, including the license, the right to future technology, and manufacturing support should be accounted for as a single unit of accounting. The consideration received is being recognized on a straight-line basis over the expected performance period, which is currently estimated to be 19 years from the effective date of the agreement. During the years ended December 31, 2009 and 2010, the Company recognized revenue of $37,000 and $76,000, respectively. During both the three-months ended March 31, 2010 and 2011, the Company recognized revenue of $19,000. As of December 31, 2009 and 2010 and March 31, 2011, the Company had $1,432,000, $1,356,000 and $1,337,000 of deferred revenue, respectively, and accounts receivable related to the reimbursement of intellectual property costs of $153,000, $42,000 and $28,000, respectively.

5. Fair value of financial instruments

The carrying amounts of cash and cash equivalents, restricted cash, prepaid expenses, accounts receivable, accounts payable and accrued expenses approximates fair value due to the short-term nature of these instruments. The capital lease obligations, convertible preferred stock warrants and contingent consideration are also carried at fair value.

Fair value is an exit price, representing the amount that would be received from the sale of an asset or paid to transfer a liability in an orderly transaction between market participants. Fair value is determined based on observable and unobservable inputs. Observable inputs reflect readily obtainable data from independent sources, while unobservable inputs reflect certain market assumptions. As a basis for considering such assumptions, GAAP establishes a three-tier value hierarchy, which prioritizes the inputs used to develop the assumptions and for measuring fair value as follows: (Level 1) observable inputs such as quoted prices in active markets for identical assets; (Level 2) inputs other than the quoted prices in active markets that are observable either directly or indirectly; and (Level 3) unobservable inputs in which there is little or no market data, which requires the Company to develop its own assumptions. This hierarchy requires the Company to use observable market data, when available, and to minimize the use of unobservable inputs when determining fair value.

The following tables show assets and liabilities measured at fair value on a recurring basis as of December 31, 2009 and 2010 and March 31, 2011 and the input categories associated with those assets and liabilities:

As of December 31, 2009 (in thousands)	**Level 1**	**Level 2**	**Level 3**
Assets			
Cash equivalents	$ 56,627	$ —	$ —
Liabilities			
Convertible preferred stock warrants	—	—	578
Contingent consideration (Note 6)	—	—	178

As of December 31, 2010 (in thousands)	**Level 1**	**Level 2**	**Level 3**
Assets			
Cash equivalents	$ 15,500	$ —	$ —
Liabilities			
Convertible preferred stock warrants	—	—	652

As of March 31, 2011 (in thousands)	**Level 1**	**Level 2**	**Level 3**
		(unaudited)	
Assets			
Cash equivalents	$ 16,503	$ —	$ —
Liabilities			
Convertible preferred stock warrants	—	—	1,368

The Company's cash and cash equivalents are invested in a U.S. treasury and federal agency-backed money market fund that approximates its face value. The fair value of the convertible preferred stock warrants was determined using the Black-Scholes option valuation model. The fair value of contingent consideration was determined by performing a probability weighted analysis of the likelihood of occurrence of potential future financing events.

The following table provides a roll-forward of the fair value of the convertible preferred stock warrants and contingent consideration, categorized as Level 3 instruments, for the years ended December 31, 2009 and 2010 and the three-months ended March 31, 2011:

(in thousands)	Contingent consideration	Convertible preferred stock warrants
Balance, December 31, 2008	$ —	$ 568
Acquisition of Hermes	178	—
Unrealized loss in other expense	—	10
Balance, December 31, 2009	178	578
Realized gain	(178)	—
Unrealized loss included in other expense	—	74
Balance, December 31, 2010	—	652
Unrealized loss included in other expense (unaudited)	—	716
Balance, March 31, 2011 (unaudited)	$ —	$ 1,368

6. Consolidated subsidiaries

Hermes BioSciences, Inc.

On October 6, 2009, (the "Acquisition Date"), the Company completed the acquisition of all outstanding shares of Hermes BioSciences, Inc. ("Hermes"), a privately-held biotechnology company developing lipidic nano-carriers to allow for targeted delivery of small molecule drugs, including chemotherapies, with the goal of improving cancer treatment safety and efficacy.

As consideration for the acquisition, the Company issued 4,383,000 shares of common stock with an estimated fair value of $9,292,000 based on an internal valuation prepared by the Company. The acquisition also included a contingent consideration arrangement that required additional shares to be issued by the Company to Hermes' former stockholders based on the occurrence and timing of certain potential future financing events. The range of additional shares that the Company could have been required to issue on the Acquisition Date as contingent consideration was between 0 and 1,100,000 and issuance could have occurred up to 24 months after the Acquisition Date. The estimated fair value of the contingent consideration recognized on the acquisition date of $178,000 was determined by performing a probability weighted analysis of the likelihood of occurrence of potential future financing events. That estimate was based on significant inputs not observable in the market, which FASB Accounting Standards Codification ("ASC") No. 820, *Fair Value Measurements and Disclosures* ("ASC 820"), refers to as Level 3 inputs. Key assumptions included management's estimates of the probabilities of such potential future financing events occurring.

As of December 31, 2010 and March 31, 2011, 400,000 additional shares could have been issued as contingent consideration. However, the Company determined a zero probability that the contingent consideration would ultimately be paid and recognized a gain of $178,000 for the year ended December 31, 2010. On July 8, 2011, the Company satisfied the contingent consideration triggering event, which reduced the shares that could be issued from 400,000 to zero.

The following table summarizes the consideration transferred to Hermes and the amounts of identified assets acquired and liabilities assumed on the Acquisition Date:

Fair value of consideration transferred:

(in thousands)	
Common shares of Merrimack Pharmaceuticals, Inc.	$ 9,292
Contingent consideration	178
	$ 9,470

Recognized amounts of identifiable assets acquired and liabilities assumed:

(in thousands)	
Cash acquired from Hermes	$ 92
Prepaid expenses	9
Other long-term assets	33
In-process research and development ("IPR&D")	7,010
Intangible assets	3,200
Accounts payable	(1,042)
Accrued expenses	(35)
Deferred tax liabilities, net of deferred tax assets	(3,402)
Total identifiable net assets	5,865
Goodwill	3,605
Total net assets	$ 9,470

The value assigned to IPR&D of $7,010,000 related to several development programs: an antibody-targeted nanotherapeutic which contains a chemotherapy drug, a nanotherapeutic which contains a chemotherapy drug and other programs in the amounts of $2,800,000, $3,400,000 and $810,000, respectively. These values were estimated by applying an income approach which includes significant inputs not observable in the market, which ASC 820 refers to as Level 3 inputs. These values were determined by estimating the costs to develop the acquired IPR&D into commercially viable products, estimating the net cash flows from such projects and discounting the net cash flows back to their present values. The probability of success factors and discount rates used for each project considered the uncertainty surrounding the successful development of the acquired IPR&D. Key assumptions included forecasted future revenues and expenses by program, application of a company specific discount rate, program specific probability of success factors and the estimated timing of product approvals. The value assigned to intangible assets of $3,200,000 related to core nano-carrier technology acquired from Hermes. The goodwill recognized is not tax deductable.

The following unaudited pro forma summary presents consolidated information of the Company after applying the Company's accounting policies as if the business combination had occurred on January 1, 2008:

(in thousands)	Pro forma year ended December 31, 2008	Pro forma year ended December 31, 2009
Research and development revenues	$ 2,298	$ 3,100
Net loss	$ 45,747	$ 49,257

In 2009, the Company incurred $309,000 of third party acquisition related costs. These expenses are included in general and administrative expense in the Company's consolidated statement of operations for the year ended December 31, 2009.

As of December 31, 2010 and March 31, 2011, none of the IPR&D projects have reached technological feasibility nor do they have any alternative future use; therefore, the Company has not commenced amortization of those assets. The core technology asset is being amortized on a straight-line basis over a period of ten years which is management's best estimate of the useful life of this technology.

Silver Creek Pharmaceuticals, Inc.

Silver Creek was incorporated on June 22, 2010 and commenced operations on August 20, 2010. On August 20, 2010, the Company purchased 12,000,000 shares of Silver Creek Convertible Series A Preferred Stock ("Silver Creek Series A") in exchange for technology licenses. On August 20, 2010 and December 17, 2010, Silver Creek issued a total of 4,190,000 shares of Silver Creek Series A to other investors in exchange for $4,165,000, net of $25,000 of issuance costs. The Company consolidated Silver Creek on August 20, 2010 as the Company concluded that Silver Creek is a variable interest entity and the Company is the primary beneficiary. The Company has the ability to direct the activities of Silver Creek through its ownership percentage and through the board of director seats controlled by the Company and its related parties and de facto agents. As of December 31, 2010 and March 31, 2011, the Company owned 74% of the voting stock of Silver Creek and as of December 31, 2010 and March 31, 2011, the Company recorded a non-controlling interest of $1,027,000 and $949,000, respectively, as a component of mezzanine equity on the Company's consolidated balance sheets based on the terms of the Silver Creek Series A.

As of December 31, 2010, the Company consolidated Silver Creek total assets and total liabilities of $3,976,000 and $61,000, respectively. As of March 31, 2011, the Company consolidated Silver Creek total assets and total liabilities of $3,715,000 and $90,000, respectively.

As of December 31, 2010 and March 31, 2011, employees and directors of the Company owned approximately 7% of Silver Creek Series A.

7. Goodwill and intangible assets, net

Changes in the carrying value of goodwill, IPR&D and intangible assets for the years ended December 31, 2009 and 2010 and three-months ended March 31, 2011 were as follows:

(in thousands)	Intangible assets	IPR&D	Goodwill
Balance, December 31, 2008	$ —	$ —	$ —
Acquisition of Hermes	3,200	7,010	3,605
Amortization	(75)	—	—
Balance, December 31, 2009	3,125	7,010	3,605
Amortization	(320)	—	—
Balance, December 31, 2010	2,805	7,010	3,605
Amortization (unaudited)	(80)	—	—
Balance, March 31, 2011 (unaudited)	$ 2,725	$ 7,010	$ 3,605

Definite-lived intangible assets subject to amortization consist of core technology acquired from Hermes. The Company commenced amortization of these assets as of the Acquisition Date on a straight-line basis over a period of ten years, which is the estimated useful life of this technology. Amortization expense is expected to be as follows for the next five-year period:

Year Ended December 31,	(in thousands)
2011	$ 320
2012	320
2013	320
2014	320
2015	320

Indefinite-lived intangible assets not subject to amortization consist of IPR&D acquired from Hermes. As of December 31, 2010 and March 31, 2011, the Company had not commenced amortization of IPR&D as it has not yet reached technological feasibility and has no alternative future use; accordingly, the full value of the IPR&D recorded at the Acquisition Date remained recorded as of December 31, 2010 and March 31, 2011.

8. Cash equivalents

The Company's investment portfolio consists of investments classified as cash equivalents. All highly liquid investments with an original maturity of three months or less when purchased are considered to be cash equivalents. All cash equivalents are carried at cost, which approximates fair value. Cash equivalents included in cash and cash equivalents were $56,627,000, $15,500,000 and $16,503,000 as of December 31, 2009 and 2010 and March 31, 2011, respectively.

9. Property and equipment, net

Property and equipment consisted of the following:

(in thousands)	December 31, 2009	December 31, 2010	March 31, 2011
			(unaudited)
Lab equipment	$ 6,515	$ 9,221	$ 9,456
IT equipment	1,090	1,301	1,324
Leasehold improvements	5,773	7,564	7,565
Furniture and fixtures	284	314	326
Construction in process	—	182	474
	13,662	18,582	19,145
Less: Accumulated depreciation and amortization	(7,171)	(11,124)	(12,360)
	$ 6,491	$ 7,458	$ 6,785

Depreciation and amortization expense was $2,058,000, $2,680,000 and $4,059,000 for the years ended December 31, 2008, 2009 and 2010, respectively. Depreciation and amortization expense was $900,000 and $1,236,000 for the three-months ended March 31, 2010 and 2011, respectively.

During 2010, the Company disposed of fixed assets of $106,000 with accumulated depreciation of $106,000. During 2008 and 2010, the Company sold fully depreciated fixed assets of $18,000 and $26,000, respectively, resulting in a gain on disposal. During 2009, the Company disposed of fixed assets of $658,000 with accumulated depreciation of $626,000. This resulted in a loss on disposal of $32,000.

In August 2004, the Company entered into an equipment financing agreement with a leasing company. The agreement involved the sale of some of the Company's fixed assets to and the leasing of those assets back from the leasing company. The Company's option to draw further on this lease facility expired during 2008. Property and equipment under capital leases as of December 31, 2009 and 2010 and March 31, 2011 was $4,219,000, $2,669,000 and $2,126,000, respectively. For the years ended December 31, 2008, 2009 and 2010, amortization of property and equipment under capital leases totaled $1,255,000, $1,067,000, and $409,000, respectively. For the three-months ended March 31, 2010 and 2011, amortization of property and equipment under capital lease totaled $185,000 and $17,000, respectively.

10. Accrued expenses

Accrued expenses as of December 31, 2009 and 2010 and March 31, 2011 consisted of the following:

(in thousands)	December 31, 2009	December 31, 2010	March 31, 2011
			(unaudited)
Goods and services	$ 2,061	$ 4,395	$ 4,833
Payroll and related benefits	2,171	2,861	2,642
Accrued consulting services	2,000	—	—
Total accrued expenses	$ 6,232	$ 7,256	$ 7,475

11. Debt

In April 2005, the Company entered into a $9 million senior loan agreement with a financing company, in exchange for cash proceeds of $9 million and warrants to purchase 302,000 shares of Series D convertible preferred stock at $3.50 per share. The Company allocated $739,000 of the borrowings to the value of the warrants. This reduction in the recorded principal amount of the debt was amortized as interest expense over the term of the senior loans using the effective interest method. The Company recorded interest expense of $135,000, $0 and $0 for years ended December 31, 2008, 2009 and 2010, respectively. As of December 31, 2010 and March 31, 2011, the warrants remain issued and outstanding. The debt matured and was fully repaid during 2008.

12. Convertible preferred stock

The following is a summary of the Company's convertible and nonconvertible redeemable preferred stock:

(in thousands, except per share amounts)	Shares authorized	Shares issued and outstanding	Carrying value	Liquidation preference (per share)	Conversion price (per share)
As of December 31, 2008					
Series A	86	—	$ —	$ —	$ —
Series B	6,000	3,874	14,046	4.40	2.85
Series C	15,100	15,077	25,895	1.89	1.89
Series D	11,500	8,086	28,267	3.50	3.50
Series E	15,000	14,991	64,531	4.50	4.50
	47,686	42,028	$ 132,739		
As of December 31, 2009					
Series A	86	—	$ —	$ —	$ —
Series B	6,000	3,874	14,046	4.40	2.85
Series C	15,100	14,417	24,429	1.89	1.89
Series D	11,500	8,086	28,267	3.50	3.50
Series E	15,000	14,991	64,531	4.50	4.50
	47,686	41,368	$ 131,273		
As of December 31, 2010					
Series B	6,000	3,874	$ 14,046	$ 4.40	$ 2.85
Series C	15,100	14,421	24,440	1.89	1.89
Series D	11,500	8,086	28,267	3.50	3.50
Series E	15,000	14,991	64,531	4.50	4.50
Series F	15,680	11,776	59,973	5.10	5.10
	63,280	53,148	$ 191,257		
As of March 31, 2011 (unaudited)					
Series B	6,000	3,874	$ 14,046	$ 4.40	$ 2.85
Series C	15,100	14,422	24,447	1.89	1.89
Series D	11,500	8,086	28,267	3.50	3.50
Series E	15,000	14,991	64,531	4.50	4.50
Series F	15,680	11,776	59,973	5.10	5.10
	63,280	53,149	$ 191,264		

During 2010, the Company amended its articles of organization to remove Series A nonconvertible redeemable preferred stock and as a result, as of December 31, 2010, Series A was no longer authorized.

The following is the carrying value activity of convertible preferred stock for the years ended December 31, 2008, 2009 and 2010 and the three-months ended March 31, 2011:

	Convertible preferred stock					
(in thousands)	Series B convertible preferred stock amount	Series C convertible preferred stock amount	Series D convertible preferred stock amount	Series E convertible preferred stock amount	Series F convertible preferred stock amount	Total
Balance at December 31, 2007 and 2008	$ 14,046	$ 25,895	$ 28,267	$ 64,531	$ —	$ 132,739
Return of Series C stock as result of license agreement	—	(1,469)	—	—	—	(1,469)
Issuance of Series C stock as result of warrant exercises	—	3	—	—	—	3
Balance at December 31, 2009	14,046	24,429	28,267	64,531	—	131,273
Issuance of Series F stock	—	—	—	—	59,973	59,973
Issuance of Series C stock as result of warrant exercises	—	11	—	—	—	11
Balance at December 31, 2010	14,046	24,440	28,267	64,531	59,973	191,257
Issuance of Series C stock as result of warrant exercise (unaudited)	—	7	—	—	—	7
Balance at March 31, 2011 (unaudited)	$ 14,046	$ 24,447	$ 28,267	$ 64,531	$ 59,973	$ 191,264

There was no change in the carrying value of the Company's convertible preferred stock for the year ended December 31, 2008.

The following is the issued and outstanding share activity of the Company's convertible preferred stock for the years ended December 31, 2008, 2009 and 2010 and three-months ended March 31, 2011:

	Convertible preferred stock					
(in thousands)	Series B convertible preferred stock shares	Series C convertible preferred stock shares	Series D convertible preferred stock shares	Series E convertible preferred stock shares	Series F convertible preferred stock shares	Total
Balance at December 31, 2007 and 2008	3,874	15,077	8,086	14,991	—	42,028
Return of Series C stock as result of license agreement	—	(662)	—	—	—	(662)
Issuance of Series C stock as result of warrant exercises	—	2	—	—	—	2
Balance at December 31, 2009	3,874	14,417	8,086	14,991	—	41,368
Issuance of Series F stock	—	—	—	—	11,776	11,776
Issuance of Series C stock as result of warrant exercises	—	4	—	—	—	4
Balance at December 31, 2010	3,874	14,421	8,086	14,991	11,776	53,148
Issuance of Series C stock as result of warrant exercise (unaudited)	—	1	—	—	—	1
Balance at March 31, 2011 (unaudited)	3,874	14,422	8,086	14,991	11,776	53,149

There was no change in the issued and outstanding shares of the Company's convertible preferred stock for the year ended December 31, 2008.

The rights and preferences at December 31, 2010 of the Series B, Series C, Series D, Series E and Series F (collectively, the "Preferred Stock") are as follows:

Voting rights

Series B, Series C, Series D, Series E and Series F stockholders are entitled to vote together with all other classes and series of stock as a single class on all matters and are entitled to the number of votes equal to the number of shares of common stock into which each share of Preferred Stock is then convertible.

Dividends

Shares of Series B, Series C, Series D, Series E and Series F accrue cumulative dividends at the annual rate of 4% of the respective purchase prices of each series, up to a maximum of 25% of the respective purchase prices, as provided in the Company's Restated Certificate of Incorporation (the "Accrued Dividends"). The Accrued Dividends are payable only upon an actual liquidation, dissolution or winding-up of the Company, a Deemed Liquidation (as defined in the Company's Restated Certificate of Incorporation), or as to the Series B, a conversion of the Series B into common stock. No dividends shall be declared, paid or set aside on any other series or class of capital stock unless a comparable dividend is declared, paid or set aside for each share of Preferred Stock on an as-converted basis. As of December 31, 2010 and March 31, 2011, no dividends have been declared or paid by the Company.

Liquidation preference

In the event of an actual liquidation, dissolution or winding-up of the Company, the holders of the Preferred Stock shall be entitled to elect to convert their respective shares and/or any Accrued Dividends into common stock or receive a payment out of the assets of the Company available for distribution to its stockholders and prior to any distributions to the holders of common stock, in the amount of $4.40 per share of Series B plus applicable, unpaid Accrued Dividends (the "Series B Liquidation Preference") in the case of Series B, $1.89 per share of Series C plus applicable, unpaid Accrued Dividends (the "Series C Liquidation Preference") in the case of Series C, $3.50 per share of Series D plus applicable, unpaid Accrued Dividends (the "Series D Liquidation Preference") in the case of Series D, $4.50 per share of Series E plus applicable, unpaid Accrued dividends (the "Series E Liquidation Preference") in the case of Series E and $5.10 per share of Series F plus applicable, unpaid Accrued dividends (the "Series F Liquidation Preference") in the case of Series F.

Unless the holders of at least two thirds of the outstanding shares of Series B, Series C, Series D, Series E and Series F each vote (as a separate class) that such events shall not be a deemed liquidation, upon the occurrence of (i) a consolidation of the Company with, or merger of the Company with or into, another business organization, other than a merger with an affiliate of the Company or a merger in which the Company is the surviving Company and the stockholders of the Company prior to such merger continue to hold a majority of the voting power, or (ii) the sale of all or substantially all of the Company 's business assets (a "Deemed Liquidation"), the holders of shares of Preferred Stock will be entitled to either elect (A) to convert the shares of Preferred Stock and/or any Accrued Dividends into common stock or (B) to receive, prior to any distribution to holders of common stock, a liquidation preference less the amount of any Accrued Dividends converted into common stock; provided that the aggregate amount received by the holders of Series B, Series C, Series D, Series E and Series F

for each share of Series B, Series C, Series D, Series E and Series F shall not exceed 125% of the Series B, Series C, Series D, Series E and Series F purchase price (each as defined in the Company's Restated Certificate of Incorporation), as applicable. After payment of Series B Liquidation Preference, Series C Liquidation Preference, Series D Liquidation Preference, Series E Liquidation Preference and the Series F Liquidation Preference, the holders of common stock shall be entitled to receive the remaining assets of the Company available for distributions.

Conversion

Each share of the Preferred Stock is convertible at the option of the holder into common stock of the Company based on a defined conversion ratio, adjustable for certain standard antidilution adjustments. At December 31, 2009 and 2010 and March 31, 2011, the conversion prices for shares of Series B, Series C, Series D, Series E and Series F were $2.85, $1.89, $3.50, $4.50, and $5.10, respectively. If at any time the Company effects a firm commitment underwritten initial public offering for shares of common stock with a per share offering price equal to or greater than the greater of $4.40 or 250% of the Series C conversion price, which results in aggregate gross proceeds to the Company of at least $50 million, then all outstanding shares of the Preferred Stock automatically convert to shares of common stock, with Accrued Dividends of approximately $4,263,000 on the Series B paid in cash.

13. Series F amount

During 2010, management determined that the Company may not have obtained all of the stockholder approvals required with respect to the Restated Articles of Organization that it filed with the Secretary of the Commonwealth of the Commonwealth of Massachusetts (the "Massachusetts Secretary") on November 2, 2007 (the "2007 Restated Articles"). Among other changes, the 2007 Restated Articles were intended to authorize the 11,776,000 shares of Series F Convertible Preferred Stock (the "Series F") that the Company agreed to issue to purchasers in 2007 and 2008. In addition, the Company filed Articles of Amendment to the 2007 Restated Articles with the Massachusetts Secretary on November 5, 2009 (the "2009 Amendment") that the Company believes were ineffective as a result of the failure to obtain the requisite shareholder approvals for the 2007 Restated Articles. As a result, the Series F was not legally issued preferred stock, but rather an unsettled obligation to issue Series F.

In order to properly authorize and issue the Series F, in July and August 2010, the board of directors and stockholders of the Company, respectively, approved new Restated Articles of Organization (the "2010 Restated Articles") that provided for the amendments contemplated by the 2007 Restated Articles and the 2009 Amendment. In order to provide the purchasers with shares of Series F having the economic benefit of the accruing dividends to which they would have been entitled had the Series F been properly authorized and issued as originally intended, the 2010 Restated Articles authorized the Series F in sub-series, with each sub-series corresponding to a closing date in 2007 or 2008. The preferences, limitations and relative rights of the shares of each sub-series of Series F authorized by the 2010 Restated Articles are the same as to the preferences, limitations and relative rights of the shares of Series F intended to be authorized by the 2007 Restated Articles and the 2009 Amendment. The 2010 Restated Articles were filed with the Massachusetts Secretary of State on October 6, 2010.

Following the filing of the 2010 Restated Articles, the Company entered into an Exchange Agreement with each individual and entity that originally agreed to purchase shares of Series F in 2007 or 2008. Pursuant to the Exchange Agreements, the Company agreed to exchange the rights to receive the shares of Series F that it had agreed to issue in 2007 and 2008 for the same number of shares of the applicable sub-series of Series F authorized by the 2010 Restated Articles. Such exchanges were completed on October 6, 2010.

The Company had a liability of $69,275,000 recorded as of December 31, 2009. The Company recorded imputed noncash interest expense for financial reporting purposes of $4,064,000, $4,805,000 and $3,673,000 for the years ended December 31, 2008, 2009 and 2010, respectively, due to the delayed delivery of Series F. Upon completion of the exchanges of Series F on October 6, 2010, the Company issued 11,776,000 shares of Series F. The Series F amount was relieved and the initial investment of $5.10 per share was recorded as convertible preferred stock and the accrued noncash interest expense of $12,974,000 was recorded as additional paid-in capital during 2010.

14. Stock warrants

The following is a description of the common stock warrant activity of the Company:

(in thousands, except per share amounts)	Warrants for the purchase of common stock	Weighted average exercise price
Balance—January 1, 2008	2,926	$ 2.35
Issued	11	1.89
Balance—December 31, 2008	2,937	2.35
Balance—December 31, 2009	2,937	2.35
Balance—December 31, 2010	2,937	2.93
Balance—March 31, 2011 (unaudited)	2,937	$ 2.93

During 2008, 11,000 warrants held by a stockholder were issued to purchase common stock at an exercise price of $1.89. The warrants were valued at $24,000 using a Black-Scholes option valuation model.

During 2010, 2,596,000 warrants held by a related party stockholder were modified to extend the expiration dates by 4 years and increase the exercise prices from $2.12 and $2.47 to $3.00 per share. The modification was valued using a Black-Scholes option valuation model and the Company recognized a $1,803,000 charge to common stock warrants and additional paid-in capital.

The following is a description of the preferred stock warrant activity of the Company:

	Warrants for the purchase of preferred stock			
(in thousands, except per share amounts)	Series C	Weighted average exercise price	Series D	Weighted average exercise price
Balance, December 31, 2008	21	$1.89	302	$3.50
Exercised	(6)	1.89	—	—
Balance, December 31, 2009	15	1.89	302	3.50
Exercised	(11)	1.89	—	—
Balance, December 31, 2010	4	1.89	302	3.50
Exercised (unaudited)	(2)	1.89	—	—
Balance, March 31, 2011 (unaudited)	2	$1.89	302	$3.50

15. Common stock

As of December 31, 2010 and March 31, 2011, the Company had 125 million shares of $0.01 par common stock authorized. As of December 31, 2009, the Company had 90 million shares of no par common stock authorized. During 2010, the Company changed the par value of its common stock from no par to $0.01 par and recognized a $17,547,000 reduction to common stock and a corresponding increase to additional paid-in capital. There were 10,868,000, 11,073,000 and 11,215,000 common shares issued and outstanding as of December 31, 2009 and 2010 and March 31, 2011, respectively. The shares reserved for future issuance as of December 31, 2010 and March 31, 2011 consisted of the following:

(in thousands)	December 31, 2010	March 31, 2011
		(unaudited)
Conversion of Series B, Series C, Series D, Series E and Series F preferred stock	55,253	55,254
Preferred stock warrants	306	304
Common stock warrants	2,937	2,937
Contingent consideration	400	400
1999 Stock Option Plan and 2008 Stock Incentive Plan	16,214	15,939
	75,110	74,834

16. Share-based compensation

Prior to 2008, the Company granted equity awards to employees, officers and consultants under the 1999 Stock Option Plan (the "1999 Plan"). In 2008, the Company adopted the 2008 Stock Incentive Plan (the "2008 Plan") for employees, officers, directors, consultants and advisors and decided that no additional shares of common stock would be issued under the 1999 Plan. The 2008 Plan, which is administered by the Board of Directors of the Company, permitted the Company to grant incentive and nonqualified stock options, restricted stock, restricted stock units and other stock-based awards, up to a maximum of 12.4 million shares. In 2009, the Board of Directors and Stockholders of the Company amended the 2008 Plan to increase the number of shares that may be issued under the plan by 4.7 million, up to a

maximum of 17.1 million shares. Awards typically vest over three years for employees and immediately for directors, at the discretion of the Board of Directors, and options typically have a maximum term of ten years. As of December 31, 2010 and March 31, 2011, there were 201,000 and 333,000 shares, respectively, available to be issued under the 2008 Plan.

In 2009, as allowed under the 2008 Plan, the Board of Directors of the Company voted to lower the exercise prices of certain outstanding stock options held by nonexecutive employees which had exercise prices greater than the fair market value of the underlying common stock. As a result, options to purchase 1.9 million shares of common stock with exercise prices greater than $2.12 per share were amended to reflect the new exercise price of $2.12 per share. Share-based compensation recognized as a result of this amendment was $59,000 and $103,000 for the years ended December 31, 2009 and 2010, respectively, and $32,000 and $12,000 for the three-months ended March 31, 2010 and 2011, respectively.

During 2008, 2009 and 2010 and the three-months ended March 31, 2010 and 2011, the Company issued options to purchase 2.7 million, 4.2 million, 2.9 million, 0.5 million and 0 shares of common stock, respectively, to its directors and employees. These options generally vest over a three-year period for employees and immediately for directors.

During 2008, 2009 and 2010 and the three-months ended March 31, 2010 and 2011, the Company granted options to purchase 65,000, 85,000, 40,000, 0 and 0 shares of common stock, respectively, to nonemployees. The assumptions used to determine the fair value of options granted to nonemployees were consistent with those used for employee grants.

The Company recognized share-based compensation expense as follows:

	Year ended December 31,			Three-months ended March 31,	
(in thousands)	**2008**	**2009**	**2010**	**2010**	**2011**
				(unaudited)	**(unaudited)**
Employee awards research and development	$ 1,352	$ 1,941	$ 2,787	$ 589	$ 700
General and administrative	981	1,314	1,706	364	273
Share-based compensation for employee awards	2,333	3,255	4,493	953	973
Share-based compensation for nonemployee awards	84	49	58	62	47
Total share-based compensation	$ 2,417	$ 3,304	$ 4,551	$ 1,015	$ 1,020

The fair value of options granted for 2008, 2009 and 2010 and the three-months ended March 31, 2011, were estimated at the date of grant using the following assumptions:

	Year ended December 31,		
	2008	**2009**	**2010**
Risk-free interest rate	3.3 - 3.5%	2.4 - 3.2%	1.7 - 2.8%
Expected dividend yield	0%	0%	0%
Expected term	5 - 5.9 years	5 - 5.9 years	5 - 5.9 years
Expected volatility	65 - 67%	69 - 76%	73 - 77%

No options were granted during the three-months ended March 31, 2011.

The Company uses the simplified method to calculate the expected term as it does not have sufficient historical exercise data to provide a reasonable basis upon which to estimate expected term. The computation of expected volatility is based on the historical volatility of comparable companies from a representative peer group selected based on industry and market capitalization. The risk-free interest rate is based on a treasury instrument whose term is consistent with the expected life of the stock options. Management estimates expected forfeitures based on historical experience and recognizes compensation costs only for those equity awards expected to vest.

The fair value of shares granted was $3,390,000, $4,974,000, $7,897,000 and $3,651,000 for the years ended 2008, 2009 and 2010 and the three-month period ended March 31, 2011, respectively. As of December 31, 2010 and March 31, 2011, there was $7,275,000 and $6,494,000, respectively, of total unrecognized compensation cost related to nonvested stock awards. As of December 31, 2010 and March 31, 2011, the Company expects to recognize those costs over weighted average periods of approximately 1.6 years and 1.5 years, respectively.

The following table summarizes stock option activity, including options issued to nonemployees:

(in thousands, except per share amounts)	Number of shares	Weighted average exercise price	Aggregate intrinsic value
Outstanding, December 31, 2009	14,660	$2.02	$ 1,492
Granted	2,984	2.52	
Exercised	(205)	1.44	
Forfeited	(1,225)	2.26	
Outstanding, December 31, 2010	16,214	$2.10	$ 9,628
Granted (unaudited)	—	—	
Exercised (unaudited)	(142)	0.34	
Forfeited (unaudited)	(133)	2.11	
Outstanding, March 31, 2011 (unaudited)	15,939	$2.10	$ 54,772
Exercisable, December 31, 2010	11,374	$2.01	$ 7,737
Exercisable, March 31, 2011 (unaudited)	12,033	$2.02	$ 42,355
Vested and expected to vest, December 31, 2010	15,797	$2.09	$ 9,464
Vested and expected to vest, March 31, 2011 (unaudited)	15,852	$2.09	$ 54,670

The aggregate intrinsic value was calculated as the difference between the exercise price of the stock options and the fair value of the underlying common stock as of the respective balance sheet date. The aggregate intrinsic value of options exercised for 2008, 2009 and 2010 and the three-months ended March 31, 2011 was $62,000, $226,000, $145,000 and $217,000, respectively. The weighted average exercise price per share for options granted during 2008, 2009 and 2010 was $2.00, $2.08 and $2.52, respectively. No options were granted during the three-months ended March 31, 2011.

The following table summarizes information including the range of exercise prices for stock options outstanding and exercisable at December 31, 2010:

	Options outstanding			Options exercisable		
Exercise Price	Number of shares (in thousands)	Weighted average remaining contractual life (years)	Weighted average exercise price	Number of shares exercisable (in thousands)	Weighted average remaining contractual life (years)	Weighted average exercise price
$0.05	51	0.97	$ 0.05	51	0.97	$ 0.05
0.32	152	0.97	0.32	152	0.97	0.32
1.25	1,115	3.66	1.25	1,115	3.66	1.25
1.71	1,755	4.57	1.71	1,755	4.57	1.71
1.81	2,440	7.82	1.81	1,964	7.80	1.81
2.12	6,153	8.14	2.12	3,571	7.57	2.12
2.19	540	1.88	2.19	540	1.88	2.19
2.25	9	0.12	2.25	9	0.12	2.25
2.47	640	5.69	2.47	640	5.69	2.47
2.59	1,049	6.77	2.59	1,049	6.77	2.59
2.69	2,095	9.83	2.69	313	9.83	2.69
4.40	215	0.51	4.40	215	0.51	4.40
	16,214	7.03	2.10	11,374	7.03	2.01
Vested and expected to vest	15,797	6.97	2.09			

17. Income taxes

As a result of losses incurred, the Company did not provide for any income taxes in the years ended December 31, 2008, 2009 and 2010. A reconciliation of the Company's effective tax rate to the statutory federal income tax rate is as follows:

	Year ended December 31,		
	2008	2009	2010
Federal statutory rate	34.0%	35.0%	35.0%
State taxes, net of Federal benefit	3.3	2.5	4.6
Permanent differences	(2.7)	(3.2)	(2.6)
Stock Compensation	(1.2)	(2.0)	(2.9)
Change in valuation allowance	(37.6)	(30.3)	(39.2)
Tax Credits	3.0	4.5	5.1
Other	1.2	—	—
	—%	6.5%	—%

Temporary differences that give rise to significant net deferred tax assets as of December 31, 2009 and 2010 are as follows:

(in thousands)	2009	2010
Deferred tax assets		
Net operating losses	$ 32,325	$ 34,035
Capitalized research and development expenses	42,963	36,865
Credit carryforwards	7,526	10,262
Depreciation	529	1,080
Deferred compensation	1,429	1,603
Deferred revenue	—	22,495
Accrued expenses	130	608
Other	639	886
Total gross deferred tax asset	85,541	107,834
Intangible assets	(4,121)	(3,953)
Valuation allowance	(81,420)	(103,881)
Net deferred taxes	$ —	$ —

As of December 31, 2010, the Company had federal and state net operating loss ("NOL") carryforwards of $88.9 million and $54.2 million, respectively, which will begin to expire in 2011. As of December 31, 2010, the Company had federal and state research and development ("R&D") and investment tax credit carryforwards of $7.9 million and $3.6 million, respectively, which will begin to expire in 2011. Management has evaluated the positive and negative evidence bearing upon the realizability of its deferred tax assets, which are comprised principally of net operating loss carryforwards. Management has determined that it is more likely than not that the Company will not recognize the benefits of federal and state deferred tax assets and, as a result, a valuation allowance of $81.4 million and $103.9 million have been established at December 31, 2009 and 2010, respectively.

Additionally, the future utilization of the Company's NOL and R&D credit carryforwards to offset future taxable income may be subject to a substantial annual limitation under Section 382 of the Internal Revenue Code due to ownership changes that have occurred previously or that could occur in the future. Ownership changes, as defined in Section 382 of the Internal Revenue Code, may have limited the amount of net operating loss carryforwards and research and development credit carryforwards that the Company can use each year to offset future taxable income and taxes payable. Subsequent ownership changes could impose additional limitations. The Company has not performed a complete 382 study. Any limitation to all or a portion of the NOL or R&D credit carryforwards, before they can be utilized, would reduce the Company's gross deferred tax asset.

The Company adopted the provisions of ASC 740-10, *Accounting for Uncertainty in Income Taxes—an interpretation of ASC 740,* on January 1, 2007. ASC 740-10 clarifies the accounting for uncertainty in income taxes recognized in an enterprise's financial statements in accordance with ASC 740, *Income Taxes*, and prescribes a recognition threshold and measurement process for financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. ASC 740-10 also provides guidance on derecognition, classification, interest and penalties, accounting in interim periods, disclosure and transition. The Company

concluded that there are no significant uncertain tax positions requiring recognition in the consolidated financial statements. The Company's evaluation was performed for the tax years ended December 31, 2007 through 2010, the tax years which remain subject to examination by major tax jurisdictions as of December 31, 2010. However, to the extent the Company utilizes net operating losses from years prior to 2007, the statute remains open to the extent of the net operating losses utilized.

The change in the valuation allowance against the deferred tax assets in the years ended December 31, 2008, 2009 and 2010 was as follows:

(in thousands)	Balance at beginning of period	Additions	Deductions	Balance at end of period
December 31, 2008	$ 50,052	16,959	—	$ 67,011
December 31, 2009	$ 67,011	17,811	(3,402)	$ 81,420
December 31, 2010	$ 81,420	22,461	—	$ 103,881

As a result of the acquisition of Hermes during 2009, the Company recognized a portion of its valuation allowance. The Company recorded intangible assets and IPR&D for which there is no tax basis. As a result, the Company recorded a net deferred tax liability in connection with the acquisition. The net deferred tax liability was offset with deferred tax assets previously recorded by the Company which resulted in a reduction in the valuation allowance. The decrease in the valuation allowance resulted in a $3,402,000 income tax benefit for the year ended December 31, 2009.

The Company's net deferred tax asset at December 31, 2010 was subject to a full valuation allowance.

In January 2010, the Massachusetts Life Sciences Center ("MLSC"), an independent agency of The Commonwealth of Massachusetts, awarded the Company $1,500,000 of tax incentives under its Life Sciences Tax Incentive Program. These incentives allowed the Company to monetize approximately $1,350,000 of state research and development tax credits. The Company received this monetization in 2010. In exchange for these incentives, the Company pledged to hire 50 employees in 2010 and retain these employees until at least December 31, 2014. Failure to do so could result in repayment of incentives. The Company deferred and is amortizing the benefit of this monetization on a straight-line basis over the 5 year performance period and for the year ended December 31, 2010 and the three-months ended March 31, 2011, the Company recognized $270,000 and $68,000, respectively, of benefit in other income.

In October 2010, the Company received grants totaling $2,445,000 under the Federal Qualifying Therapeutic Discovery Projects program as provided for under section 48D of the Internal Revenue Code, enacted as part of the Patient Protection and Affordable Care Act of 2010. The Company received $1,941,000 during 2010 and $504,000 during the first quarter of 2011 related to these grants. For the year ended December 31, 2010, the Company recognized $2,445,000 as other income related to these grants.

In January 2011, the MLSC awarded the Company $1,347,000 of tax incentives under its Life Sciences Tax Incentive Program. These incentives will allow the Company to monetize approximately $1,212,000 of state research and development tax credits. The Company received

this monetization in June 2011. In exchange for these incentives, the Company has pledged to hire 50 employees in 2011 and retain these employees until at least December 31, 2015. Failure to do so could result in repayment of incentives. As of March 31, 2011, the Company has not recognized any benefit associated with these tax incentives.

18. Commitments and contingencies

Operating leases

The Company leases its office and manufacturing space and certain office equipment under noncancelable operating leases. Total rent expense under these operating leases was $1,387,000, $2,082,000, $2,846,000, $649,000 and $700,000 for the years ended December 31, 2008, 2009 and 2010 and the three-months ended March 31, 2010 and 2011, respectively.

Future minimum lease payments under noncancelable operating leases at December 31, 2010 are as follows:

Year ended December 31,	(in thousands)
2011	$ 2,617
2012	1,086
2013	—

During 2008, the Company expanded its existing facility and amended its office and manufacturing space operating lease. As part of this amendment, the landlord agreed to reimburse the Company for a portion of tenant improvements made to the facility. During 2009, the Company received $786,000 from the landlord. In January and June 2010, the Company entered into lease amendments to further expand its office and manufacturing space. These lease amendments are co-terminous with the Company's existing facility lease which expires in April 2012. As part of these amendments, the landlord agreed to reimburse the Company for a portion of tenant improvements made to the facility. During 2010, the Company received $217,000 from the landlord. These amounts were recorded in deferred lease benefits on the Company's balance sheets and are being amortized over the term of the lease as reductions to rent expense. On March 31, 2011, the Company amended its existing office and manufacturing lease to extend the term on a portion of its leased space until April 2015 and extend the term on the remainder of leased space until April 2013 with options to extend until April 2015. Incremental future minimum lease payments as a result of this amendment are $1,695,000, $1,986,000, $1,429,000 and $480,000 for the years ended December 31, 2012, 2013, 2014 and 2015, respectively.

Capital leases

In August 2004, the Company entered into an agreement with a leasing company under which the Company was authorized to borrow up to $1.4 million of noncourse debt through sale/lease-back and loan structured transactions which were collateralized by equipment. In January 2006, the agreement was amended increasing the Company's total borrowing capacity to $4.5 million. Each lease is to be repaid over a four year period. The interest rate was established based on a percentage above treasury interest rates. Borrowings made under this agreement were $675,000 for the year ended December 31, 2008. The Company's option to draw further on this lease facility expired during 2008.

Future minimum lease payments under noncancelable capital leases at December 31, 2010 are as follows:

Year ended December 31,	(in thousands)
2011	$ 456
2012	49
2013	—
	505
Less interest	14
Present value of minimum lease payments	491
Less current portion of capital lease obligations	443
Capital lease obligations, net of current portion	$ 48

19. Retirement plan

On May 31, 2002, the Company established a 401(k) defined contribution savings plan for its employees who meet certain service period and age requirements. Contributions are permitted up to the maximum allowed under the Internal Revenue Code of each covered employee's salary. The savings plan permits the Company to contribute at its discretion. For the years ended December 31, 2008, 2009 and 2010 and the three-months ended March 31, 2010 and 2011, the Company made contributions of $260,000, $270,000, $380,000, $91,000 and $124,000, respectively, to the plan.

20. Subsequent events

The Company has assessed the impact of subsequent events through July 8, 2011, the date the audited consolidated financial statements were available for issuance, and has concluded that there were no such events that require adjustment to the audited consolidated financial statements or disclosure in the notes to the audited consolidated financial statements, except as noted below.

On April 6, 2011, the Company raised approximately $77 million by issuing 11 million shares of Series G convertible preferred stock. Proceeds related to this financing of $12,508,000 were received as of March 31, 2011 and classified as a current liability on the Company's consolidated balance sheets as of March 31, 2011. Also on April 6, 2011, the Company amended the 2008 Plan to increase the number of shares that may be issued under the plan by 2.5 million, up to a maximum of 19.6 million shares.

On May 4, 2011, the Company merged its wholly-owned subsidiary Hermes with and into the Company.

On May 5, 2011, the Company entered into a product development and commercialization collaboration agreement with PharmaEngine, Inc. under which the Company reacquired rights in certain Asian and European countries to a drug being developed under the name MM-398. In exchange, the Company agreed to pay PharmaEngine a nonrefundable, noncreditable upfront payment of $10 million and up to an additional $210 million of potential future milestone payments and royalties should MM-398 achieve specified regulatory and sales milestones. The Company is responsible for all future development costs of MM-398.

shares

Common stock

Prospectus

J.P. Morgan

BofA Merrill Lynch

Cowen and Company **Oppenheimer & Co.**

, 2011

We have not authorized anyone to provide you with information other than that contained in this prospectus or in any free writing prospectus prepared by or on behalf of us or to which we have referred you. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We are offering to sell, and seeking offers to buy, shares of common stock only in jurisdictions where offers and sales are permitted. The information contained in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of this prospectus or of any sale of our common stock.

No action is being taken in any jurisdiction outside the United States to permit a public offering of the common stock or possession or distribution of this prospectus in that jurisdiction. Persons who come into possession of this prospectus in jurisdictions outside the United States are required to inform themselves about and to observe any restrictions as to this offering and the distribution of this prospectus applicable to that jurisdiction.

Until , 2011, all dealers that buy, sell or trade in our common stock, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to the dealers' obligation to deliver a prospectus when acting as underwriters and with respect to their unsold allotments or subscriptions.

Part II
Information not required in prospectus

Item 13. Other expenses of issuance and distribution.

The following table sets forth the expenses to be incurred in connection with the offering described in this Registration Statement, other than underwriting discounts and commissions, all of which will be paid by us. All amounts are estimates except the SEC registration fee and the Financial Industry Regulatory Authority, Inc. filing fee.

	Amount
Securities and Exchange Commission registration fee	$ 20,028
Financial Industry Regulatory Authority, Inc. filing fee	17,750
NASDAQ listing fee	*
Accountants' fees and expenses	*
Legal fees and expenses	*
Blue Sky fees and expenses	*
Transfer Agent's fees and expenses	*
Printing and engraving expenses	*
Miscellaneous	*
Total Expenses	$ *

* To be filed by amendment.

Item 14. Indemnification of directors and officers.

Section 102 of the Delaware General Corporation Law permits a corporation to eliminate the personal liability of its directors or its stockholders for monetary damages for a breach of fiduciary duty as a director, except where the director breached his or her duty of loyalty, failed to act in good faith, engaged in intentional misconduct or knowingly violated a law, authorized the payment of a dividend or approved a stock repurchase in violation of Delaware corporate law or obtained an improper personal benefit. Our certificate of incorporation provides that no director shall be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duty as a director, notwithstanding any provision of law imposing such liability, except to the extent that the Delaware General Corporation Law prohibits the elimination or limitation of liability of directors for breaches of fiduciary duty.

Section 145 of the Delaware General Corporation Law provides that a corporation has the power to indemnify a director, officer, employee or agent of the corporation and certain other persons serving at the request of the corporation in related capacities against expenses (including attorneys' fees), judgments, fines and amounts paid in settlements actually and reasonably incurred by the person in connection with an action, suit or proceeding to which he or she is or is threatened to be made a party by reason of such position, if such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the corporation, and, in any criminal action or proceeding, had no reasonable cause to believe his or her conduct was unlawful, except that, in the case of actions brought by or in the right of the corporation, no indemnification shall be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery or other adjudicating

court determines that, despite the adjudication of liability but in view of all of the circumstances of the case, such person is fairly and reasonably entitled to indemnify for such expenses which the Court of Chancery or such other court shall deem proper.

Our certificate of incorporation provides that we will indemnify each person who was or is a party or threatened to be made a party to any threatened, pending or completed action, suit or proceeding whether civil, criminal, administrative or investigative (other than an action by or in the right of us) by reason of the fact that he or she is or was, or has agreed to become, our director or officer, or is or was serving, or has agreed to serve, at our request as a director, officer, partner, employee or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise (all such persons being referred to as an "Indemnitee"), or by reason of any action alleged to have been taken or omitted in such capacity, against all expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding and any appeal therefrom, if such Indemnitee acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interests, and, with respect to any criminal action or proceeding, he or she had no reasonable cause to believe his or her conduct was unlawful.

Our certificate of incorporation also provides that we will indemnify any Indemnitee who was or is a party to an action or suit by or in the right of us to procure a judgment in our favor by reason of the fact that the Indemnitee is or was, or has agreed to become, our director or officer, or is or was serving, or has agreed to serve, at our request as a director, officer, partner, employee or trustee or, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise, or by reason of any action alleged to have been taken or omitted in such capacity, against all expenses (including attorneys' fees) and, to the extent permitted by law, amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding, and any appeal therefrom, if the Indemnitee acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interests, except that no indemnification shall be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to us, unless a court determines that, despite such adjudication but in view of all of the circumstances, he or she is entitled to indemnification of such expenses. Notwithstanding the foregoing, to the extent that any Indemnitee has been successful, on the merits or otherwise, he or she will be indemnified by us against all expenses (including attorneys' fees) actually and reasonably incurred by him or her or on his or her behalf in connection therewith. If we don't assume the defense, expenses must be advanced to an Indemnitee under certain circumstances.

We have entered into indemnification agreements with our directors and executive officers. In general, these agreements provide that we will indemnify the director or executive officer to the fullest extent permitted by law for claims arising in his or her capacity as a director or officer of our company or in connection with their service at our request for another corporation or entity. The indemnification agreements also provide for procedures that will apply in the event that a director or executive officer makes a claim for indemnification and establish certain presumptions that are favorable to the director or executive officer.

We maintain a general liability insurance policy which covers certain liabilities of our directors and officers arising out of claims based on acts or omissions in their capacities as directors or officers.

The underwriting agreement we will enter into in connection with the offering of common stock being registered hereby provides that the underwriters will indemnify, under certain conditions, our directors and officers (as well as certain other persons) against certain liabilities arising in connection with such offering.

Item 15. Recent sales of unregistered securities.

Set forth below is information regarding shares of common stock and preferred stock issued, and options and warrants granted, by us within the past three years that were not registered under the Securities Act. Also included is the consideration, if any, received by us for such shares, options and warrants and information relating to the section of the Securities Act, or rule of the SEC, under which exemption from registration was claimed.

(a) Issuances of securities

Between November 2007 and April 2008, we agreed to issue an aggregate of 11,775,995 shares of our series F convertible preferred stock at a price per share of $5.10 for an aggregate purchase price of $60,057,575. In July 2010, in connection with a review of our corporate records, we determined that we may not have obtained all of the required stockholder approvals to amend our articles of organization to authorize the shares of series F convertible preferred stock that we agreed to issue in 2007 and 2008. As a result, we conducted an exchange offer in which we provided investors to whom we had agreed to issue and sell shares of series F convertible preferred stock in the series F convertible preferred stock financing in 2007 and 2008 with the opportunity to acquire shares of properly authorized series F convertible preferred stock. All of the holders of shares of series F convertible preferred stock accepted our offer and received new, properly authorized shares of series F convertible preferred stock. Each such holder received a sub-series of the properly authorized series F convertible preferred stock that is intended to provide the investor with the economic benefit of the accrued dividends to which the investor would be entitled had the properly authorized shares of series F convertible preferred stock been issued on the date that we originally agreed to do so in 2007 and 2008. In the exchange offer, we issued an aggregate of 11,775,995 shares of our properly authorized series F convertible preferred stock. All outstanding shares of series F preferred stock will automatically convert into an aggregate of 11,775,995 shares of common stock upon completion of this offering.

In October 2010, our stockholders approved an agreement and plan of merger that had the effect of changing the state in which we were incorporated from Massachusetts to Delaware by merging our predecessor entity, Merrimack Pharmaceuticals, Inc., a Massachusetts corporation, or Merrimack Massachusetts, with and into a Delaware corporation formed for purposes of the merger that was a wholly owned subsidiary of Merrimack Massachusetts. As a result, we are now a Delaware corporation with the name Merrimack Pharmaceuticals, Inc. At the effective time of the merger in October 2010, all of the outstanding shares of each class and series of capital stock of Merrimack Massachusetts were converted into corresponding shares of our capital stock on a one-to-one basis. In connection with the merger, we issued an aggregate of 11,215,211 shares of our common stock, 3,873,448 shares of our series B convertible preferred stock, 14,417,702 shares of our series C convertible preferred stock, 8,086,305 shares of our series D convertible preferred stock, 14,990,892 shares of our series E convertible preferred stock and 11,775,995 shares of our series F convertible preferred stock. In addition, all options and warrants to purchase shares of Merrimack Massachusetts capital stock

that were outstanding at the effective time of the merger in October 2010 were automatically converted into options and warrants to purchase corresponding shares of our capital stock.

In October 2009, we issued an aggregate of 4,382,993 shares of our common stock to 20 stockholders as consideration for their shares of Hermes BioSciences, Inc. in connection with our acquisition of Hermes BioSciences, Inc. For purposes of the merger agreement and the escrow agreement entered into in connection with the acquisition, the per share value of our common stock was deemed to be $5.68.

In April 2011, we issued an aggregate of 11,000,000 shares of our series G convertible preferred stock at a price per share of $7.00 for an aggregate purchase price of $77,000,000. All outstanding shares of series G preferred stock will automatically convert into an aggregate of 11,000,000 shares of common stock upon completion of this offering.

No underwriters were involved in the foregoing sales of securities. The securities described in this section (a) of Item 15 were issued to investors in reliance upon the exemption from the registration requirements of the Securities Act, as set forth in Section 4(2) under the Securities Act and Regulation D promulgated thereunder relative to transactions by an issuer not involving any public offering, to the extent an exemption from such registration was required. All purchasers of shares of convertible preferred stock described above represented to us in connection with their purchase that they were accredited investors and were acquiring the shares for their own account for investment purposes only and not with a view to, or for sale in connection with, any distribution thereof and that they could bear the risks of the investment and could hold the securities for an indefinite period of time. The purchasers received written disclosures that the securities had not been registered under the Securities Act and that any resale must be made pursuant to a registration statement or an available exemption from such registration.

(b) Stock option grants

Between January 1, 2008 and May 31, 2011, we issued to certain employees, directors and consultants options to purchase an aggregate of 11,921,058 shares of common stock, of which, as of May 31, 2011, options to purchase 1,449 shares of common stock had been exercised, options to purchase 901,455 shares of common stock had been forfeited and options to purchase 11,018,154 shares of common stock remained outstanding at a weighted average exercise price of $2.77 per share.

The issuance of stock options and the common stock issuable upon the exercise of such options as described in this section (b) of Item 15 were issued pursuant to written compensatory plans or arrangements with our employees, directors and consultants, in reliance on the exemption from the registration requirements of the Securities Act provided by Rule 701 promulgated under the Securities Act or the exemption set forth in Section 4(2) under the Securities Act and Regulation D promulgated thereunder relative to transactions by an issuer not involving any public offering. All recipients either received adequate information about us or had access, through employment or other relationships, to such information.

(c) Issuance of warrants

In connection with certain equipment financing transactions undertaken pursuant to a master lease agreement dated August 13, 2004 between us and General Electric Capital Corporation,

as amended in February, March and June of 2008, we issued to General Electric Capital Corporation warrants to purchase 10,726 shares of common stock at an exercise price of $1.889 per share. All such warrants to purchase common stock will remain outstanding upon completion of this offering.

The sale and issuance of these warrants were made in reliance on the exemption provided by Section 4(2) of the Securities Act and Regulation D promulgated thereunder. The recipients of warrants in the transaction described above represented that they were accredited investors and were acquiring the warrants for their own account for investment purposes only and not with a view to, or for sale in connection with, any distribution thereof and that they could bear the risks of the investment and could hold the warrants for an indefinite period of time and appropriate legends were affixed to the instruments representing such warrants issued in such transactions. Such recipients either received adequate information about us or had, through its relationship with us, access to such information.

All of the foregoing securities are deemed restricted securities for purposes of the Securities Act. All certificates representing the issued shares of capital stock described in this Item 15 included appropriate legends setting forth that the securities had not been registered and the applicable restrictions on transfer.

Item 16. Exhibits and financial statement schedules.

The exhibits to the registration statement are listed in the Exhibit Index attached hereto and incorporated by reference herein.

Item 17. Undertakings.

(a) The undersigned registrant hereby undertakes to provide to the underwriter at the closing specified in the underwriting agreements, certificates in such denominations and registered in such names as required by the underwriter to permit prompt delivery to each purchaser.

(b) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that, in the opinion of the Securities and Exchange Commission, such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

(c) The undersigned registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the

registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

Signatures

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Cambridge, Commonwealth of Massachusetts, on this 8th day of July, 2011.

MERRIMACK PHARMACEUTICALS, INC.

By: /s/ ROBERT J. MULROY

Robert J. Mulroy
President and Chief Executive Officer

Signatures and power of attorney

We, the undersigned officers and directors of Merrimack Pharmaceuticals, Inc., hereby severally constitute and appoint Robert J. Mulroy and William A. Sullivan, and each of them singly (with full power to each of them to act alone), our true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution in each of them for him and in his name, place and stead, and in any and all capacities, to sign any and all amendments (including post-effective amendments) to this Registration Statement, and any other registration statement for the same offering pursuant to Rule 462(b) under the Securities Act of 1933, and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite or necessary to be done in and about the premises, as full to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or their or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed by the following persons in the capacities held on the dates indicated.

Signature	Title	Date
/s/ ROBERT J. MULROY Robert J. Mulroy	President, Chief Executive Officer and Director (Principal executive officer)	July 8, 2011
/s/ WILLIAM A. SULLIVAN William A. Sullivan	Chief Financial Officer and Treasurer (Principal financial and accounting officer)	July 8, 2011

Signature	Title	Date
/s/ GARY L. CROCKER Gary L. Crocker	Director	July 8, 2011
/s/ JAMES VAN B. DRESSER James van B. Dresser	Director	July 8, 2011
/s/ GORDON J. FEHR Gordon J. Fehr	Director	July 8, 2011
/s/ ROBERT C. GAY, PH.D. Robert C. Gay, Ph.D.	Director	July 8, 2011
/s/ WALTER M. LOVENBERG, PH.D. Walter M. Lovenberg, Ph.D.	Director	July 8, 2011
/s/ SARAH E. NASH Sarah E. Nash	Director	July 8, 2011
/s/ MICHAEL E. PORTER, PH.D. Michael E. Porter, Ph.D.	Director	July 8, 2011
/s/ ANTHONY J. SINSKEY, SC.D. Anthony J. Sinskey, Sc.D.	Director	July 8, 2011

Exhibit index

Exhibit number	Description of exhibit
1.1*	Underwriting Agreement
3.1	Restated Certificate of Incorporation of the Registrant
3.2	Bylaws of the Registrant
3.3*	Restated Certificate of Incorporation of the Registrant to be effective upon the closing of this offering
3.4*	Amended and Restated Bylaws of the Registrant to be effective upon the closing of this offering
4.1*	Specimen certificate evidencing shares of common stock
4.2	Fifth Amended and Restated Investor Rights Agreement, dated April 6, 2011, by and among the Registrant and the other parties thereto
4.3	Warrant to purchase shares of Series D Convertible Preferred Stock, dated April 6, 2005, issued by the Registrant to Hercules Technology Growth Capital, Inc.
4.4	Warrant to purchase shares of Series C Convertible Preferred Stock, dated November 22, 2006, issued by the Registrant to General Electric Capital Corporation
4.5	Form of warrant to purchase shares of Common Stock issued by the Registrant to HF Holding—ABI, MS Seed Capital Partners, LP and Wren Holdings LLC
4.6	Form of warrant to purchase shares of Common Stock issued by the Registrant to General Electric Capital Corporation
4.7	Form of warrant to purchase shares of Common Stock issued by the Registrant to various parties expiring on December 10, 2015
4.8	Form of warrant to purchase shares of Common Stock issued by the Registrant to various parties expiring on December 17, 2015
4.9	Form of warrant to purchase shares of Common Stock issued by the Registrant to various parties expiring on March 10, 2016
5.1*	Opinion of Wilmer Cutler Pickering Hale and Dorr LLP
10.1	1999 Stock Option Plan
10.2	2008 Stock Incentive Plan
10.3*	2011 Stock Incentive Plan
10.4*	Form of Incentive Stock Option Agreement under 2011 Stock Incentive Plan
10.5*	Form of Nonqualified Stock Option Agreement under 2011 Stock Incentive Plan
10.6*	Amended and Restated Employment Agreement, dated as of , 2011, by and between the Registrant and Fazal R. Khan
10.7*	Amended and Restated Employment Agreement, dated as of , 2011, by and between the Registrant and Robert J. Mulroy
10.8*	Amended and Restated Employment Agreement, dated as of , 2011, by and between the Registrant and Ulrik B. Nielsen
10.9*	Amended and Restated Employment Agreement, dated as of , 2011, by and between the Registrant and Clet M. Niyikiza
10.10*	Amended and Restated Employment Agreement, dated as of , 2011, by and between the Registrant and Edward J. Stewart
10.11*	Amended and Restated Employment Agreement, dated as of , 2011, by and between the Registrant and William A. Sullivan
10.12*	Form of Indemnification Agreement between the Registrant and each director and executive officer

Exhibit number	Description of exhibit
10.13	Indenture of Lease, dated as of May 16, 2006, by and between the Registrant and RB Kendall Fee, LLC, as amended on March 23, 2007, July 1, 2007, April 1, 2008, November 17, 2008, July 6, 2009, January 27, 2010, June 29, 2010 and March 31, 2011
10.14	Sublease, dated as of August 20, 2010, by and between Silver Creek Pharmaceuticals, Inc. and FibroGen, Inc., as amended on January 20, 2011, May 4, 2011 and May 26, 2011
10.15†	Patent License Agreement, dated as of February 20, 2008, by and between the Registrant and the United States Public Health Service
10.16†	License Agreement, dated as of September 26, 2005, by and between the Registrant (as successor-in-interest to Hermes BioSciences, Inc.) and Merrimack Pharmaceuticals (Bermuda) Ltd. (as assignee from PharmaEngine, Inc.), as amended on June 30, 2011
10.17†	Assignment, Sublicense and Collaboration Agreement, dated as of May 5, 2011, by and between Merrimack Pharmaceuticals (Bermuda) Ltd. and PharmaEngine, Inc.
10.18†	License and Collaboration Agreement, dated as of September 30, 2009, by and between the Registrant and Sanofi, as amended on February 18, 2011
10.19†	Commercial License Agreement, dated as of June 6, 2008, by and between the Registrant and Selexis SA, as amended on January 8, 2010
10.20†	Exclusive License Agreement, dated as of November 1, 2000, by and between the Registrant (as successor-in-interest to Hermes BioSciences, Inc.) and The Regents of the University of California, as amended on October 6, 2003, September 13, 2006, June 6, 2007 and September 28, 2007
10.21†	Exclusive License Agreement, dated as of March 16, 2005, by and between the Registrant and The Regents of the University of California, as amended on November 17, 2009
10.22†	Collaboration Agreement, dated as of November 16, 2009, by and between the Registrant and Adimab LLC, as amended on April 27, 2010 and June 2, 2010
10.23†	Sublicense Agreement, dated as of June 30, 2008, by and between the Registrant and Dyax Corp.
10.24†	Amended and Restated Collaboration Agreement, dated as of January 24, 2007, by and between the Registrant and Dyax Corp., as amended on July 31, 2008 and November 6, 2009
21.1	Subsidiaries of the Registrant
23.1	Consent of PricewaterhouseCoopers LLP, an independent registered public accounting firm
23.2*	Consent of Wilmer Cutler Pickering Hale and Dorr LLP (included in Exhibit 5.1)
24.1	Power of Attorney (included on signature page)

* To be filed by amendment.

† Confidential treatment requested as to portions of the exhibit. Confidential materials omitted and filed separately with the Securities and Exchange Commission.

Exhibit 3.1

RESTATED CERTIFICATE OF INCORPORATION

OF

MERRIMACK PHARMACEUTICALS, INC.

Merrimack Pharmaceuticals, Inc., a corporation organized and existing under the General Corporation Law of the State of Delaware, does hereby certify that:

1) The name of this corporation is Merrimack Pharmaceuticals, Inc. The original Certificate of Incorporation was filed with the Secretary of State of the State of Delaware on July 6, 2010 (the "**Original Certificate**").

2) This Restated Certificate of Incorporation amends, restates and integrates the provisions of the Original Certificate and was duly adopted in accordance with the provisions of Sections 228, 242 and 245 of the General Corporation Law of the State of Delaware (the "**General Corporation Law**") by the board of directors and stockholders of the Corporation.

3) The text of the Original Certificate is hereby amended and restated in its entirety to read as follows:

FIRST: The name of this corporation is Merrimack Pharmaceuticals, Inc. (the "**Corporation**").

SECOND: The address of the registered office of the Corporation in the State of Delaware is Corporation Trust Center, 1209 Orange Street, in the City of Wilmington, County of New Castle. The name of its registered agent at such address is The Corporation Trust Company.

THIRD: The purpose of the Corporation is to engage in any lawful act or activity for which corporations may be organized under the General Corporation Law.

FOURTH: The total number of shares of all classes of stock which the Corporation shall have authority to issue is 212,780,000 shares, consisting of (i) 138,500,000 shares of Common Stock, $0.01 par value per share ("**Common Stock**"), and (ii) 74,280,000 shares of Preferred Stock, $0.01 par value per share ("**Preferred Stock**"), of which:

(A) 6,000,000 shares are designated as Series B Convertible Preferred Stock (the "**Series B Preferred Stock**"), of which (1) 1,018,634 shares of Series B Preferred Stock are designated as Sub-Series B-1 Convertible Preferred Stock (the "**Sub-Series B-1 Preferred Stock**"), (2) 117,220 shares of Series B Preferred Stock are designated as Sub-Series B-2 Convertible Preferred Stock (the "**Sub-Series B-2 Preferred Stock**"), (3) 681,512 shares of Series B Preferred Stock are designated as Sub-Series B-3 Convertible Preferred Stock (the "**Sub-Series B-3 Preferred Stock**"), (4) 1,135,855 shares of Series B Preferred Stock are designated as Sub-Series B-4 Convertible Preferred Stock (the "**Sub-Series B-4 Preferred Stock**"), (5) 258,870 shares of Series B Preferred Stock are designated as Sub-Series B-5 Convertible Preferred Stock (the "**Sub-Series B-5 Preferred Stock**"), (6) 102,902 shares of Series B Preferred Stock are designated as Sub-Series B-6 Convertible Preferred Stock (the

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"**Sub-Series B-6 Preferred Stock**"), (7) 227,171 shares of Series B Preferred Stock are designated as Sub-Series B-7 Convertible Preferred Stock (the "**Sub-Series B-7 Preferred Stock**"), (8) 81,113 shares of Series B Preferred Stock are designated as Sub-Series B-8 Convertible Preferred Stock (the "**Sub-Series B-8 Preferred Stock**"), (9) 23,000 shares of Series B Preferred Stock are designated as Sub-Series B-9 Convertible Preferred Stock (the "**Sub-Series B-9 Preferred Stock**"), (10) 227,171 shares of Series B Preferred Stock are designated as Sub-Series B-10 Convertible Preferred Stock (the "**Sub-Series B-10 Preferred Stock**"), and (11) 2,126,552 shares of Series B Preferred Stock are designated as Sub-Series B-11 Convertible Preferred Stock (the "**Sub-Series B-11 Preferred Stock**"),

(B) 15,100,000 shares are designated as Series C Convertible Preferred Stock (the "**Series C Preferred Stock**"), of which (1) 9,725,944 shares of Series C Preferred Stock are designated as Sub-Series C-1 Convertible Preferred Stock (the "**Sub-Series C-1 Preferred Stock**"), (2) 4,169,264 shares of Series C Preferred Stock are designated as Sub-Series C-2 Convertible Preferred Stock (the "**Sub-Series C-2 Preferred Stock**"), (3) 520,670 shares of Series C Preferred Stock are designated as Sub-Series C-3 Convertible Preferred Stock (the "**Sub-Series C-3 Preferred Stock**"), (4) 554 shares of Series C Preferred Stock are designated as Sub-Series C-4 Convertible Preferred Stock (the "**Sub-Series C-4 Preferred Stock**"), (5) 862 shares of Series C Preferred Stock are designated as Sub-Series C-5 Convertible Preferred Stock (the "**Sub-Series C-5 Preferred Stock**"), (6) 408 shares of Series C Preferred Stock are designated as Sub-Series C-6 Convertible Preferred Stock (the "**Sub-Series C-6 Preferred Stock**"), and (7) 682,298 shares of Series C Preferred Stock are designated as Sub-Series C-7 Convertible Preferred Stock (the "**Sub-Series C-7 Preferred Stock**"),

(C) 11,500,000 shares are designated as Series D Convertible Preferred Stock (the "**Series D Preferred Stock**"), of which (1) 5,720,925 shares of Series D Preferred Stock are designated as Sub-Series D-1 Convertible Preferred Stock (the "**Sub-Series D-1 Preferred Stock**"), (2) 2,365,380 shares of Series D Preferred Stock are designated as Sub-Series D-2 Convertible Preferred Stock (the "**Sub-Series D-2 Preferred Stock**"), and (3) 3,413,695 shares of Series D Preferred Stock are designated as Sub-Series D-3 Convertible Preferred Stock (the "**Sub-Series D-3 Preferred Stock**"),

(D) 15,000,000 shares are designated as Series E Convertible Preferred Stock (the "**Series E Preferred Stock**"), of which (1) 14,444,444 shares of Series E Preferred Stock are designated as Sub-Series E-1 Convertible Preferred Stock (the "**Sub-Series E-1 Preferred Stock**"), (2) 546,448 shares of Series E Preferred Stock are designated as Sub-Series E-2 Convertible Preferred Stock (the "**Sub-Series E-2 Preferred Stock**"), and (3) 9,108 shares of Series E Preferred Stock are designated as Sub-Series E-3 Convertible Preferred Stock (the "**Sub-Series E-3 Preferred Stock**"),

(E) 15,680,000 shares are designated as Series F Convertible Preferred Stock (the "**Series F Preferred Stock**"), of which (1) 6,928,320 shares of Series F Preferred Stock are designated as Sub-Series F-1 Convertible Preferred Stock (the "**Sub-Series F-1 Preferred Stock**"), (2) 1,591,543 shares of Series F Preferred Stock are designated as Sub-Series F-2 Convertible Preferred Stock (the "**Sub-Series F-2 Preferred Stock**"), (3) 3,256,132 shares of Series F Preferred Stock are designated as Sub-Series F-3 Convertible Preferred Stock (the "**Sub-Series F-3 Preferred Stock**"), and (4) 3,904,005 shares of Series F Preferred Stock are

designated as Sub-Series F-4 Convertible Preferred Stock (the "**Sub-Series F-4 Preferred Stock**"), and

(F) 11,000,000 shares are designated as Series G Convertible Preferred Stock (the "**Series G Preferred Stock**").

References herein to the "**Series B Preferred Stock**" shall mean the Sub-Series B-1 Preferred Stock, Sub-Series B-2 Preferred Stock, Sub-Series B-3 Preferred Stock, Sub-Series B-4 Preferred Stock, Sub-Series B-5 Preferred Stock, Sub-Series B-6 Preferred Stock, Sub-Series B-7 Preferred Stock, Sub-Series B-8 Preferred Stock, Sub-Series B-9 Preferred Stock, Sub-Series B-10 Preferred Stock and Sub-Series B-11 Preferred Stock, collectively. References herein to the "**Series C Preferred Stock**" shall mean the Sub-Series C-1 Preferred Stock, Sub-Series C-2 Preferred Stock, Sub-Series C-3 Preferred Stock, Sub-Series C-4 Preferred Stock, Sub-Series C-5 Preferred Stock, Sub-Series C-6 Preferred Stock and Sub-Series C-7 Preferred Stock, collectively. References herein to the "**Series D Preferred Stock**" shall mean the Sub-Series D-1 Preferred Stock, Sub-Series D-2 Preferred Stock and Sub-Series D-3 Preferred Stock, collectively. References herein to the "**Series E Preferred Stock**" shall mean the Sub-Series E-1 Preferred Stock, Sub-Series E-2 Preferred Stock and Sub-Series E-3 Preferred Stock, collectively. References herein to the "**Series F Preferred Stock**" shall mean the Sub-Series F-1 Preferred Stock, Sub-Series F-2 Preferred Stock, Sub-Series F-3 Preferred Stock and Sub-Series F-4 Preferred Stock, collectively. The Series B Preferred Stock, Series C Preferred Stock, Series D Preferred Stock, Series E Preferred Stock, Series F Preferred Stock and Series G Preferred Stock are collectively referred to as the "**Convertible Preferred Stock**."

The following is a statement of the designations and the powers, privileges and rights, and the qualifications, limitations or restrictions thereof in respect of each class of capital stock of the Corporation.

A. COMMON STOCK

1. General. The voting, dividend and liquidation rights of the holders of the Common Stock are subject to and qualified by the rights, powers and preferences of the holders of the Preferred Stock set forth herein.

2. Dividends. The holders of Common Stock shall be entitled to receive dividends with respect to such shares of Common Stock, when and as declared by the Board of Directors of the Corporation, provided, however, that such dividends shall be payable with respect to Common Stock only after all accrued dividends on the Convertible Preferred Stock shall have been paid or declared and a sum sufficient for the payment thereof has been set apart.

3. Liquidation, Dissolution or Winding Up. After payment of all preferential amounts required to be paid to the holders of Convertible Preferred Stock upon the dissolution, liquidation or winding up of the Corporation, the holders of shares of Common Stock then outstanding shall be entitled to receive the remaining assets and funds of the Corporation available for distribution to its stockholders.

4. Voting. The holders of the Common Stock are entitled to one vote for each share of Common Stock held at all meetings of stockholders (and written actions in lieu of meetings);

provided, however, that, except as otherwise required by law, holders of Common Stock, as such, shall not be entitled to vote on any amendment to the Certificate of Incorporation that relates solely to the terms of one or more outstanding series of Preferred Stock if the holders of such affected series are entitled, either separately or together with the holders of one or more other such series, to vote thereon pursuant to the Certificate of Incorporation or pursuant to the General Corporation Law. The number of authorized shares of Common Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by (in addition to any vote of the holders of one or more series of Preferred Stock that may be required by the terms of the Certificate of Incorporation) the affirmative vote of the holders of shares of capital stock of the Corporation representing a majority of the votes represented by all outstanding shares of capital stock of the Corporation entitled to vote, irrespective of the provisions of Section 242(b)(2) of the General Corporation Law and no vote of the holders of the shares of Common Stock voting separately as a class shall be required therefor.

B. PREFERRED STOCK

Unless otherwise indicated, references to "Sections" or "Subsections" in this Part B of this Article Fourth refer to sections and subsections of Part B of this Article Fourth.

1. Dividends. The holders of Series B Preferred Stock, Series C Preferred Stock, Series D Preferred Stock, Series E Preferred Stock, Series F Preferred Stock and Series G Preferred Stock shall be entitled to receive dividends *pari passu* except to the extent specifically set forth herein. Each share of Sub-Series B-1 Preferred Stock shall accrue dividends at the rate of 4% of the Series B Purchase Price (as hereinafter defined) per annum as if such share had actually been issued and began accruing dividends on May 3, 2001 up to the maximum hereinafter provided, each share of Sub-Series B-2 Preferred Stock shall accrue dividends at the rate of 4% of the Series B Purchase Price per annum as if such share had actually been issued and began accruing dividends on May 31, 2001 up to the maximum hereinafter provided, each share of Sub-Series B-3 Preferred Stock shall accrue dividends at the rate of 4% of the Series B Purchase Price per annum as if such share had actually been issued and began accruing dividends on July 9, 2001 up to the maximum hereinafter provided, each share of Sub-Series B-4 Preferred Stock shall accrue dividends at the rate of 4% of the Series B Purchase Price per annum as if such share had actually been issued and began accruing dividends on October 15, 2001 up to the maximum hereinafter provided, each share of Sub-Series B-5 Preferred Stock shall accrue dividends at the rate of 4% of the Series B Purchase Price per annum as if such share had actually been issued and began accruing dividends on December 21, 2001 up to the maximum hereinafter provided, each share of Sub-Series B-6 Preferred Stock shall accrue dividends at the rate of 4% of the Series B Purchase Price per annum as if such share had actually been issued and began accruing dividends on January 23, 2002 up to the maximum hereinafter provided, each share of Sub-Series B-7 Preferred Stock shall accrue dividends at the rate of 4% of the Series B Purchase Price per annum as if such share had actually been issued and began accruing dividends on August 30, 2002 up to the maximum hereinafter provided, each share of Sub-Series B-8 Preferred Stock shall accrue dividends at the rate of 4% of the Series B Purchase Price per annum as if such share had actually been issued and began accruing dividends on August 31, 2002 up to the maximum hereinafter provided, each share of Sub-Series B-9 Preferred Stock shall accrue dividends at the rate of 4% of the Series B Purchase Price per annum as if such share had actually been issued and began accruing dividends on September 17, 2002 up to the

maximum hereinafter provided, each share of Sub-Series B-10 Preferred Stock shall accrue dividends at the rate of 4% of the Series B Purchase Price per annum as if such share had actually been issued and began accruing dividends on October 8, 2002 up to the maximum hereinafter provided, each share of Sub-Series B-11 Preferred Stock shall accrue dividends at the rate of 4% of the Series B Purchase Price per annum from and after the date of issuance of such share up to the maximum hereinafter provided, each share of Sub-Series C-1 Preferred Stock shall accrue dividends at the rate of 4% of the Series C Purchase Price (as hereinafter defined) per annum as if such share had actually been issued and began accruing dividends on December 12, 2003 up to the maximum hereinafter provided, each share of Sub-Series C-2 Preferred Stock shall accrue dividends at the rate of 4% of the Series C Purchase Price per annum as if such share had actually been issued and began accruing dividends on March 11, 2004 up to the maximum hereinafter provided, each share of Sub-Series C-3 Preferred Stock shall accrue dividends at the rate of 4% of the Series C Purchase Price per annum as if such share had actually been issued and began accruing dividends on April 14, 2004 up to the maximum hereinafter provided, each share of Sub-Series C-4 Preferred Stock shall accrue dividends at the rate of 4% of the Series C Purchase Price per annum as if such share had actually been issued and began accruing dividends on August 12, 2009 up to the maximum hereinafter provided, each share of Sub-Series C-5 Preferred Stock shall accrue dividends at the rate of 4% of the Series C Purchase Price per annum as if such share had actually been issued and began accruing dividends on September 21, 2009 up to the maximum hereinafter provided, each share of Sub-Series C-6 Preferred Stock shall accrue dividends at the rate of 4% of the Series C Purchase Price per annum as if such share had actually been issued and began accruing dividends on May 4, 2010 up to the maximum hereinafter provided, each share of Sub-Series C-7 Preferred Stock shall accrue dividends at the rate of 4% of the Series C Purchase Price per annum from and after the date of issuance of such share up to the maximum hereinafter provided, each share of Series D-1 Preferred Stock shall accrue dividends at the rate of 4% of the Series D Purchase Price (as hereinafter defined) per annum as if such share had actually been issued and began accruing dividends on January 26, 2005 up to the maximum hereinafter provided, each share of Series D-2 Preferred Stock shall accrue dividends at the rate of 4% of the Series D Purchase Price per annum as if such share had actually been issued and began accruing dividends on March 31, 2005 up to the maximum hereinafter provided, each share of Series D-3 Preferred Stock shall accrue dividends at the rate of 4% of the Series D Purchase Price per annum from and after the date of issuance of such share up to the maximum hereinafter provided, each share of Series E-1 Preferred Stock shall accrue dividends at the rate of 4% of the Series E Purchase Price (as hereinafter defined) per annum as if such share had actually been issued and began accruing dividends on March 24, 2006 up to the maximum hereinafter provided, each share of Series E-2 Preferred Stock shall accrue dividends at the rate of 4% of the Series E Purchase Price per annum as if such share had actually been issued and began accruing dividends on December 28, 2007 up to the maximum hereinafter provided, each share of Series E-3 Preferred Stock shall accrue dividends at the rate of 4% of the Series E Purchase Price per annum from and after the date of issuance of such share up to the maximum hereinafter provided, each share of Sub-Series F-1 Preferred Stock shall accrue dividends at the rate of 4% of the Series F Purchase Price (as hereinafter defined) per annum as if such share had actually been issued and began accruing dividends on November 5, 2007 up to the maximum hereinafter provided, each share of Sub-Series F-2 Preferred Stock shall accrue dividends at the rate of 4% of the Series F Purchase Price per annum as if such share had actually been issued and began accruing dividends on April 24, 2008 up to the maximum hereinafter

provided, each share of Sub-Series F-3 Preferred Stock shall accrue dividends at the rate of 4% of the Series F Purchase Price per annum as if such share had actually been issued and began accruing dividends on May 30, 2008 up to the maximum hereinafter provided, each share of Sub-Series F-4 Preferred Stock shall accrue dividends at the rate of 4% of the Series F Purchase Price per annum from and after the date of issuance of such share up to the maximum hereinafter provided and each share of Series G Preferred Stock shall accrue dividends at the rate of 4% of the Series G Purchase Price per annum from and after the date of issuance of such share up to the maximum hereinafter provided (together, the "**Accrued Dividends**"). The Accrued Dividends shall (a) as to the Series B Preferred Stock, be payable only upon (i) an actual liquidation, dissolution or winding up of the Corporation, (ii) a Deemed Liquidation (as defined in Section 2.2), or (iii) a conversion of the Series B Preferred Stock (as provided in Section 4.1), and (b) as to the Series C Preferred Stock, Series D Preferred Stock, Series E Preferred Stock, Series F Preferred Stock and Series G Preferred Stock, be payable only upon (i) an actual liquidation, dissolution or winding up of the Corporation or (ii) a Deemed Liquidation (as defined in Section 2.2). No dividends shall be declared, paid or set aside on any other series or class of capital stock unless a comparable dividend is declared, paid or set aside for each share of Convertible Preferred Stock on an as-converted basis.

2. Liquidation, Dissolution or Winding Up; Certain Mergers, Consolidations and Asset Sales.

2.1 Actual Liquidation. In the event of an actual liquidation, dissolution or winding up of the Corporation, the holders of shares of Convertible Preferred Stock will be entitled to either elect (A) to convert the shares of Convertible Preferred Stock and/or any Accrued Dividends into Common Stock (the conversion of any Accrued Dividends to be determined by dividing (1) the lesser of (a) the amount of unpaid Accrued Dividends on such shares of Convertible Preferred Stock or (b) twenty-five percent (25%) of the Series B Purchase Price, Series C Purchase Price, Series D Purchase Price, Series E Purchase Price, Series F Purchase Price or Series G Purchase Price, as the case may be (subject to adjustment for stock splits, stock dividends and the like), by (2) the then applicable Conversion Price (as defined in Section 4.4)), or (B) to receive, prior to any distribution to holders of Common Stock, (x) a liquidation preference equal to $4.40197 per share of Series B Preferred Stock (the "**Series B Purchase Price**") plus applicable, unpaid Accrued Dividends (the "**Series B Liquidation Preference**"), less the amount of any Accrued Dividends converted into Common Stock, (y) a liquidation preference equal to $1.889 per share of Series C Preferred Stock (the "**Series C Purchase Price**") plus applicable, unpaid Accrued Dividends (the "**Series C Liquidation Preference**"), less the amount of any Accrued Dividends converted into Common Stock, (z) a liquidation preference equal to $3.50 per share of Series D Preferred Stock (the "**Series D Purchase Price**") plus applicable, unpaid Accrued Dividends (the "**Series D Liquidation Preference**"), less the amount of any Accrued Dividends converted into Common Stock, (aa) a liquidation preference equal to $4.50 per share of Series E Preferred Stock (the "**Series E Purchase Price**") plus applicable, unpaid Accrued Dividends (the "**Series E Liquidation Preference**"), less the amount of any Accrued Dividends converted into Common Stock, (bb) a liquidation preference equal to $5.10 per share of Series F Preferred Stock (the "**Series F Purchase Price**") plus applicable, unpaid Accrued Dividends (the "**Series F Liquidation Preference**"), less the amount of any Accrued Dividends converted into Common Stock, or (cc) a liquidation preference equal to $7.00 per share of Series G Preferred Stock (the "**Series G**

Purchase Price") plus applicable, unpaid Accrued Dividends (the "**Series G Liquidation Preference**"), less the amount of any Accrued Dividends converted into Common Stock. After payment of the Series B Liquidation Preference, Series C Liquidation Preference, Series D Liquidation Preference, Series E Liquidation Preference, Series F Liquidation Preference and Series G Liquidation Preference, the holders of Common Stock shall be entitled to receive the remaining assets of the Corporation available for distribution. If upon such actual liquidation, dissolution or winding up of the Corporation, whether voluntary or involuntary, the assets to be distributed among the holders of shares of Convertible Preferred Stock shall be insufficient to permit payment in full to the

holders of shares of Convertible Preferred Stock of amounts distributable as aforesaid, then the entire assets of the Corporation to be so distributed shall be distributed ratably among the holders of shares of Convertible Preferred Stock according to the respective amounts which would be payable with respect to such shares of Convertible Preferred Stock upon such distribution if all amounts payable on or with respect to said shares were paid in full.

2.2 Deemed Liquidation. Unless the holders of at least two-thirds of the outstanding shares of Series B Preferred Stock, Series C Preferred Stock, Series D Preferred Stock, Series E Preferred Stock, Series F Preferred Stock and Series G Preferred Stock each vote (as a separate class) that such events shall not be a deemed liquidation, upon the occurrence of (i) a consolidation of the Corporation with, or merger of the Corporation with or into, another business organization, other than a merger with an affiliate of the Corporation or a merger in which the Corporation is the surviving Corporation and the stockholders of the Corporation prior to such merger continue to hold a majority of the voting power, or (ii) the sale of all or substantially all of the Corporation's business assets (a "**Deemed Liquidation**"), the holders of shares of Convertible Preferred Stock will be entitled to either elect (A) to convert the shares of Convertible Preferred Stock and/or any Accrued Dividends into Common Stock (the conversion of any Accrued Dividends to be determined by dividing (1) the lesser of (a) the amount of unpaid Accrued Dividends on such shares of Convertible Preferred Stock or (b) twenty-five percent (25%) of the Series B Purchase Price, Series C Purchase Price, Series D Purchase Price, Series E Purchase Price, Series F Purchase Price or Series G Purchase Price, as the case may be, by (2) the then applicable Conversion Price (as defined in Section 4.4), (B) to receive, prior to any distribution to holders of Common Stock, the Series B Liquidation Preference, Series C Liquidation Preference, Series D Liquidation Preference, Series E Liquidation Preference, Series F Liquidation Preference or Series G Liquidation Preference, as applicable, less the amount of any Accrued Dividends converted into Common Stock, provided that the aggregate amount received by the holders of Convertible Preferred Stock for each share of Convertible Preferred Stock shall not exceed 125% of the Series B Purchase Price, Series C Purchase Price, Series D Purchase Price, Series E Purchase Price, Series F Purchase Price or Series G Purchase Price, as applicable. After payment of the Series B Liquidation Preference, Series C Liquidation Preference, Series D Liquidation Preference, Series E Liquidation Preference, Series F Liquidation Preference and Series G Liquidation Preference, the holders of Common Stock shall be entitled to receive the remaining assets of the Corporation available for distribution. If upon such Deemed Liquidation, the assets to be distributed among the holders of shares of Convertible Preferred Stock shall be insufficient to permit payment in full to the holders of shares of Convertible Preferred Stock of the amounts distributable as aforesaid, then the entire assets of the Corporation to be so distributed shall be distributed ratably among the holders of shares of Convertible Preferred Stock according to the respective amounts which would be payable with respect to such shares of Convertible Preferred

Stock upon such distribution if all amounts payable on or with respect to said shares were paid in full.

3. Voting.

3.1 General. On any matter presented to the stockholders of the Corporation for their action or consideration at any meeting of stockholders of the Corporation (or by written consent of stockholders in lieu of meeting), each holder of outstanding shares of Convertible Preferred Stock shall be entitled to cast the number of votes equal to the number of whole shares of Common Stock into which such shares of Convertible Preferred Stock held by such holder are convertible as of the record date for determining stockholders entitled to vote on such matter. Except as provided by law or by the other provisions of the Certificate of Incorporation, holders of Convertible Preferred Stock shall vote together with the holders of Common Stock as a single class. In the event that an action to be taken by the stockholders of the Corporation would entitle the holders of the Series B Preferred Stock to a separate vote as a class, then the holders of Sub-Series B-1 Preferred Stock, Sub-Series B-2 Preferred Stock, Sub-Series B-3 Preferred Stock, Sub-Series B-4 Preferred Stock, Sub-Series B-5 Preferred Stock, Sub-Series B-6 Preferred Stock, Sub-Series B-7 Preferred Stock, Sub-Series B-8 Preferred Stock, Sub-Series B-9 Preferred Stock, Sub-Series B-10 Preferred Stock and Sub-Series B-11 Preferred Stock shall vote together as a single class. In the event that an action to be taken by the stockholders of the Corporation would entitle the holders of the Series C Preferred Stock to a separate vote as a class, then the holders of Sub-Series C-1 Preferred Stock, Sub-Series C-2 Preferred Stock, Sub-Series C-3 Preferred Stock, Sub-Series C-4 Preferred Stock, Sub-Series C-5 Preferred Stock, Sub-Series C-6 Preferred Stock and Sub-Series C-7 Preferred Stock shall vote together as a single class. In the event that an action to be taken by the stockholders of the Corporation would entitle the holders of the Series D Preferred Stock to a separate vote as a class, then the holders of Sub-Series D-1 Preferred Stock, Sub-Series D-2 Preferred Stock and Sub-Series D-3 Preferred Stock shall vote together as a single class. In the event that an action to be taken by the stockholders of the Corporation would entitle the holders of the Series E Preferred Stock to a separate vote as a class, then the holders of Sub-Series E-1 Preferred Stock, Sub-Series E-2 Preferred Stock and Sub-Series E-3 Preferred Stock shall vote together as a single class. In the event that an action to be taken by the stockholders of the Corporation would entitle the holders of the Series F Preferred Stock to a separate vote as a class, then the holders of Sub-Series F-1 Preferred Stock, Sub-Series F-2 Preferred Stock, Sub-Series F-3 Preferred Stock and Sub-Series F-4 Preferred Stock shall vote together as a single class.

3.2 Preferred Stock Class Vote. For so long as at least 20% of the maximum number of shares of each of the Series B Preferred Stock, Series C Preferred Stock, Series D Preferred Stock, Series E Preferred Stock, Series F Preferred Stock and Series G Preferred Stock that were ever outstanding remain outstanding (appropriately adjusted to reflect any stock split, stock dividend or the like), the Corporation shall not without the approval of the holders of a majority of the then outstanding shares of Series B Preferred Stock, Series C Preferred Stock, Series D Preferred Stock, Series E Preferred Stock, Series F Preferred Stock or Series G Preferred Stock (as applicable), voting separately as a class, given in writing or by vote at a meeting, alter, change or amend the preferences or rights of the Series B Preferred Stock, Series C Preferred Stock, Series D Preferred Stock, Series E Preferred Stock, Series F Preferred Stock or Series G Preferred Stock in a manner that is adverse to the Series B Preferred Stock, Series C

Preferred Stock, Series D Preferred Stock, Series E Preferred Stock, Series F Preferred Stock or Series G Preferred Stock, as the case may be.

3.3 Preferred Stock Protective Provisions. Without limiting any rights of any stockholders under any other provision of this Article IV, for so long as at least 20% of the maximum number of shares of Convertible Preferred Stock that were ever outstanding remain outstanding (appropriately adjusted to reflect any stock split, stock dividend or the like), the Corporation shall not without the approval of the holders of a majority of the then outstanding shares of Convertible Preferred Stock, voting together as a class, given in writing or by a vote at a meeting:

(a) incur convertible indebtedness or incur indebtedness accompanied by warrants to purchase any class of stock in excess of $2,500,000;

(b) incur unsecured indebtedness (including any convertible indebtedness or debt accompanied by warrants otherwise permitted) or guarantees in excess of $5,000,000 in the aggregate;

(c) make material changes in the Corporation's business that cause the Corporation's business to be unrelated to one or more of the fields of biotechnology, proteomics or immunology;

(d) authorize, create or issue shares of any class of stock having, with respect to liquidation or dividends, any rights, privileges or preferences superior to the Convertible Preferred Stock; or

(e) authorize, create or issue shares of any class of stock having rights, privileges or preferences *pari passu* with the Convertible Preferred Stock, unless such class is issued to a venture capital investor, strategic investor or other institutional investor active in the biotechnology industry.

4. Conversion.

4.1 Right to Convert; Conversion Price. Subject to the terms and conditions of this Section 4, the holder of any share or shares of Convertible Preferred Stock shall have the right, at its option at any time from time to time, to convert any such shares of Convertible Preferred Stock into such number of fully paid and nonassessable shares of Common Stock as is obtained by (i) in the case of (a) Series B Preferred Stock, multiplying the number of shares of Series B Preferred Stock so to be converted by the Series B Purchase Price, (b) Series C Preferred Stock, multiplying the number of shares of Series C Preferred Stock so to be converted by the Series C Purchase Price, (c) Series D Preferred Stock, multiplying the number of shares of Series D Preferred Stock so to be converted by the Series D Purchase Price, (d) Series E Preferred Stock, multiplying the number of shares of Series E Preferred Stock so to be converted by the Series E Purchase Price, (e) Series F Preferred Stock, multiplying the number of shares of Series F Preferred Stock so to be converted by the Series F Purchase Price, and (f) Series G Preferred Stock, multiplying the number of shares of Series G Preferred Stock so to be converted by the Series G Purchase Price, and (ii) dividing the result by the then applicable Conversion Price (as defined in Section 4.4). Such rights of conversion shall be exercised by the holder

thereof by giving written notice that the holder elects to convert a stated number of shares of Convertible Preferred Stock into Common Stock and by surrender of a certificate or certificates for the shares so to be converted to the Corporation, together with a statement of the name or names (with address) in which the certificate or certificates for shares of Common Stock shall be issued. Any unpaid Accrued Dividends with respect to any shares of Series B Preferred Stock so converted shall be paid in cash at the time of conversion, in an amount not exceeding the lesser of (x) the amount of unpaid Accrued Dividends on such shares of Series B Preferred Stock or (y) twenty-five percent (25%) of the Series B Purchase Price, except to the extent such conversion is in contemplation of an actual liquidation as provided in Section 2.1 or a Deemed Liquidation as provided in Section 2.2. No payment shall be made on account of any unpaid Accrued Dividends with respect to any shares of Series C Preferred Stock, Series D Preferred Stock, Series E Preferred Stock, Series F Preferred Stock or Series G Preferred Stock so converted, except to the extent such conversion is in contemplation of an actual liquidation as provided in Section 2.1 or a Deemed Liquidation as provided in Section 2.2.

4.2 Issuance of Certificates; Time Conversion Effected. Promptly after the receipt of the written notice referred to in Section 4.1 and surrender of the certificate or certificates for the share or shares of Convertible Preferred Stock to be converted, the Corporation shall issue and deliver, or cause to be issued and delivered, to the holder, registered in such name or names as such holder may direct, a certificate or certificates for the number of whole shares of Common Stock issuable upon the conversion of such share or shares of Convertible Preferred Stock. To the extent permitted by law, such conversion shall be deemed to have been effected and the Conversion Price shall be determined as of the close of business on the date on which such written notice shall have been received by the Corporation and the certificate or certificates for such share or shares shall have been surrendered as aforesaid, and at such time the rights of the holder of such share or shares of Convertible Preferred Stock shall cease, and the person or persons in whose name or names any certificate or certificates for shares of Common Stock shall be issuable upon such conversion shall be deemed to have become the holder or holders of record of the shares represented thereby.

4.3 Fractional Shares; Partial Conversion. No fractional shares shall be issued upon conversion of Convertible Preferred Stock into Common Stock. In lieu of any fractional shares to which the holder would otherwise be entitled, the Corporation shall pay cash equal to such fraction multiplied by the fair market value of a share of Common Stock as determined in good faith by the Board of Directors of the Corporation. Whether or not fractional shares would be issuable upon such conversion shall be determined on the basis of the total number of shares of Convertible Preferred Stock the holder is at the time converting into Common Stock and the aggregate number of shares of Common Stock issuable upon such conversion. In case the number of shares of Convertible Preferred Stock represented by the certificate or certificates surrendered pursuant to Section 4.1 exceeds the number of shares converted, the Corporation shall, upon such conversion, execute and deliver to the holder, at the expense of the Corporation, a new certificate or certificates for the number of shares of Convertible Preferred Stock represented by the certificate or certificates surrendered which are not to be converted.

4.4 Conversion Price. The initial Conversion Price for shares of Series B Preferred Stock shall be $2.852, for shares of Series C Preferred Stock shall be $1.889 (the "**Series C Conversion Price**"), for shares of Series D Preferred Stock shall be $3.50 (the "**Series**

D Conversion Price"), for shares of Series E Preferred Stock shall be $4.50 (the "**Series E Conversion Price**"), for shares of Series F Preferred Stock shall be $5.10 (the "**Series F Conversion Price**"), and for shares of Series G Preferred Stock shall be $7.00 (the "**Series G Conversion Price**"). Except as provided in Section 4.5, if the Corporation, at any time or from time to time after the date on which a share of Series G Preferred Stock was first issued (the "**Series G Issue Date**"), shall issue or sell or, in accordance with Sections 4.4(a) through (f), is deemed to have issued or sold, any shares of Common Stock (a) with respect to the Series B Preferred Stock and Series C Preferred Stock, for a consideration per share less than the Series C Conversion Price in effect immediately prior to the time of such issue or sale and (b) with respect to the Series D Preferred Stock, Series E Preferred Stock, Series F Preferred Stock and Series G Preferred Stock for a consideration per share less than the Series D Conversion Price, Series E Conversion Price, Series F Conversion Price or Series G Conversion Price, as applicable, then in each case the applicable Conversion Price shall be reduced to the price determined as follows:

$$\textbf{Conversion Price} = \frac{\textbf{(A x B) + C}}{\textbf{(A + D)}}$$

where:

A = the number of shares of Common Stock issued and outstanding immediately prior to such issue or sale (calculated on a fully-diluted basis assuming the conversion of the Convertible Preferred Stock and the exercise, exchange or conversion of all outstanding options, warrants or subscription rights);

B = the applicable Conversion Price in effect immediately prior to such issuance or sale;

C = the consideration, if any, received by the Corporation upon such issue or sale; and

D = the total number of shares of Common Stock issued or sold in such issuance or sale.

For purposes of this Section 4.4, the following shall also be applicable:

(a) Issuance of Rights or Options. In case at any time the Corporation shall in any manner grant (whether directly, indirectly or by assumption in a merger or otherwise) any warrants or other rights to subscribe for or to purchase, or any options for the purchase of, Common Stock or any stock or security convertible into or exchangeable for Common Stock (such warrants, rights or options being called "**Options**" and such convertible or exchangeable stock or securities being called "**Convertible Securities**") whether or not such Options or the right to convert or exchange any such Convertible Securities are immediately exercisable, and the price per share for which Common Stock is issuable upon the exercise of such Options or upon the conversion or exchange of such Convertible Securities (determined by dividing (i) the total amount, if any, received or receivable by the Corporation as consideration for the granting of such Options, plus the minimum aggregate amount of additional consideration payable to the Corporation upon the exercise of all such Options, plus, in the case of such Options which relate to Convertible Securities, the minimum aggregate amount of additional consideration, if any, payable upon the issue or sale of such Convertible Securities and upon the conversion or exchange thereof, by (ii) the total maximum number of shares of Common Stock issuable upon

the exercise of such Options or upon the conversion or exchange of all such Convertible Securities issuable upon the exercise of such Options) shall be less than the Conversion Price in effect immediately prior to the time of the granting of such Options, then the total maximum number of shares of Common Stock issuable upon the exercise of such Options or upon conversion or exchange of the total maximum amount of such Convertible Securities issuable upon the exercise of such Options shall be deemed to have been issued for such price per share as of the date of granting of such Options or the issuance of such Convertible Securities and thereafter shall be deemed to be outstanding. Except as otherwise provided in Section 4.4(c), no adjustment of the Conversion Price shall be made upon the actual issue of such Common Stock or of such Convertible Securities upon exercise of such Options or upon the actual issue of such Common Stock upon conversion or exchange of such Convertible Securities.

(b) Issuance of Convertible Securities. In case the Corporation shall in any manner issue (whether directly or by assumption in a merger or otherwise) or sell any Convertible Securities, whether or not the rights to exchange or convert any such Convertible Securities are immediately exercisable, and the price per share for which Common Stock is issuable upon such conversion or exchange (determined by dividing (i) the total amount received or receivable by the Corporation as consideration for the issue or sale of such Convertible Securities, plus the minimum aggregate amount of additional consideration, if any, payable to the Corporation upon the conversion or exchange thereof, by (ii) the total maximum number of shares of Common Stock issuable upon the conversion or exchange of all such Convertible Securities) shall be less than the Conversion Price in effect immediately prior to the time of such issue or sale, then the total maximum number of shares of Common Stock issuable upon conversion or exchange of all such Convertible Securities shall be deemed to have been issued for such price per share as of the date of the issue or sale of such Convertible Securities and thereafter shall be deemed to be outstanding, provided that (a) except as otherwise provided in Section 4.4(c), no adjustment of the Conversion Price shall be made upon the actual issue of such Common Stock upon conversion or exchange of such Convertible Securities and (b) if any such issue or sale of such Convertible Securities is made upon exercise of any Options to purchase any such Convertible Securities for which adjustments of the Conversion Price have been or are to be made pursuant to other provisions of this Section 4.4, no further adjustment of the Conversion Price shall be made by reason of such issue or sale.

(c) Change in Option Price of Conversion Rate. Upon the happening of any of the following events, namely, if the purchase price provided for in any Option referred to in Section 4.4(a), the additional consideration, if any, payable upon the conversion or exchange of any Convertible Securities referred to in Section 4.4(a) or (b), or the rate at which Convertible Securities referred to in Section 4.4(a) or (b) are convertible into or exchangeable for Common Stock shall change at any time (including, but not limited to, changes under or by reason of provisions designed to protect against dilution), the Conversion Price in effect at the time of such event shall forthwith be readjusted to the Conversion Price which would have been in effect at such time had such Options or Convertible Securities still outstanding provided for such changed purchase price, additional consideration or conversion rate, as the case may be, at the time initially granted, issued or sold; and on the termination of any such Option or any such right to convert or exchange such Convertible Securities, the Conversion Price then in effect hereunder shall forthwith be increased to the Conversion Price which would have been in effect at the time of such termination had such Option or Convertible Securities, to the extent outstanding

immediately prior to such termination, never been issued, provided, however, that adjustments made pursuant to this Section 4.4(c) shall not result in the Conversion Price being higher than it would have been had such Options or Convertible Securities never been issued.

(d) Consideration for Stock. In case any shares of Common Stock, Options or Convertible Securities shall be issued or sold for cash, the consideration received therefor shall be deemed to be the amount received by the Corporation therefor, without deduction therefrom of any expenses incurred or any underwriting commissions or concessions paid or allowed by the Corporation in connection therewith. In case any shares of Common Stock, Options or Convertible Securities shall be issued or sold for a consideration other than cash, the amount of the consideration other than cash received by the Corporation shall be deemed to be the fair value of such consideration as determined in good faith by the Board of Directors of the Corporation, without deduction of any expenses incurred or any underwriting commissions or concessions paid or allowed by the Corporation in connection therewith. In case any Options shall be issued in connection with the issue and sale of other securities of the Corporation, together comprising one integral transaction in which no specific consideration is allocated to such Options by the parties thereto, such Options shall be deemed to have been issued for such consideration as determined in good faith by the Board of Directors of the Corporation.

(e) Record Date. In case the Corporation shall take a record of the holders of its Common Stock for the purpose of entitling them (i) to receive a dividend or other distribution payable in Common Stock, Options or Convertible Securities or (ii) to subscribe for or purchase Common Stock, Options or Convertible Securities, then such record date shall be deemed to be the date of the issue or sale of the shares of Common Stock deemed to have been issued or sold upon the declaration of such dividend or the making of such other distribution or the date of the granting of such right of subscription or purchase, as the case may be.

(f) Treasury Shares. The disposition of any shares of Common Stock owned or held by or for the account of the Corporation shall be considered an issue or sale of Common Stock for the purpose of this Section 4.4.

4.5 Certain Issues of Common Stock Excepted. Notwithstanding anything to the contrary contained in Section 4.4, the Corporation shall not be required to make any adjustment of the Conversion Price in the case of the issuance, from and after the Series G Issue Date, of (a) up to 18,772,304 shares of Common Stock, including options therefor (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization affecting such shares), issued to employees or directors of, or consultants or advisors to, the Corporation or any of its subsidiaries pursuant to the Corporation's option plan or any other similar equity incentive plans of the Corporation approved by the Board of Directors of the Corporation or the Board of Directors of the Corporation's predecessor, Merrimack Pharmaceuticals, Inc., a Massachusetts corporation (the "**Predecessor**"), whether issued before or after the Series G Issue Date (provided that any options for such shares that expire or terminate unexercised or any restricted stock repurchased by the Corporation at cost shall not be counted toward such maximum number unless and until such shares are regranted as new stock grants (or as new options) pursuant to the terms of any such plan, agreement or arrangement), (b) securities in connection with acquisitions approved by the Board of Directors of the Corporation or the Board of Directors of the Predecessor, (c) securities to financial

institutions or lessors in connection with commercial credit arrangements, equipment financings, leasing (real estate, equipment or otherwise) arrangements or similar arrangements approved by the Board of Directors of the Corporation or the Board of Directors of the Predecessor, (d) securities in connection with strategic alliances, joint ventures, licensing arrangements, collaborations, partnerships or similar arrangements approved by the Board of Directors of the Corporation or the Board of Directors of the Predecessor, (e) shares of Common Stock upon conversion of the Convertible Preferred Stock or securities upon the exercise of the warrants outstanding as of the Series G Issue Date, or shares of Common Stock issuable upon conversion of the Convertible Preferred Stock issuable upon exercise of such warrants, (f) shares of Series G Preferred Stock at or above the Series G Purchase Price, and shares of Common Stock on conversion of such shares of Series G Preferred Stock, or (g) shares of Common Stock in a Qualified Public Offering (as defined in Section 4.14). Collectively, the issuances listed in items (a) through (g) above are hereinafter referred as the "**Excepted Issuances**."

4.6 Subdivision or Combination of Common Stock. In case the Corporation shall at any time subdivide (by any stock split, stock dividend or otherwise) its outstanding shares of Common Stock into a greater number of shares, the Conversion Price in effect immediately prior to such subdivision shall be proportionately reduced, and, conversely, in case the outstanding shares of Common Stock shall be combined into a smaller number of shares, the Conversion Price in effect immediately prior to such combination shall be proportionately increased.

4.7 Reorganization or Reclassification. If any capital reorganization or reclassification of the capital stock of the Corporation shall be effected in such a way that holders of Common Stock shall be entitled to receive stock, securities or assets with respect to or in exchange for Common Stock, then, as a condition of such reorganization or reclassification, lawful and adequate provisions shall be made whereby each holder of a share or shares of Convertible Preferred Stock shall thereupon have the right to receive, upon the basis and upon the terms and conditions specified herein and in lieu of the shares of Common Stock immediately theretofore receivable upon the conversion of such share or shares of Convertible Preferred Stock, such shares of stock, securities or assets as may be issued or payable with respect to or in exchange for a number of outstanding shares of such Common Stock equal to the number of shares of such Common Stock immediately theretofore receivable upon such conversion had such reorganization or reclassification not taken place.

4.8 Notice of Adjustment. Upon any adjustment of the Conversion Price, then and in each such case the Corporation shall give written notice thereof by mailing such notice by United States Postal Service, addressed to each holder of shares of Convertible Preferred Stock at the address of such holder as shown on the books of the Corporation, which notice shall state the Conversion Price resulting from such adjustment, setting forth in reasonable detail the method upon which such calculation is based.

4.9 Other Notices. In case at any time: (a) the Corporation shall declare any dividend upon its Common Stock payable in cash or stock or make any other distribution to the holders of its Common Stock; (b) the Corporation shall offer for subscription pro rata to the holders of its Common Stock any additional shares of stock of any class or other rights; (c) there shall be any capital reorganization or reclassification of the capital stock of the Corporation, or a

consolidation or merger of the Corporation with or into another entity or entities, or a sale, lease, abandonment, transfer or other disposition of all or substantially all its assets; or (d) there shall be a voluntary or involuntary dissolution, liquidation or winding up of the Corporation; then, in any one or more of said cases, the Corporation shall provide the holders of Convertible Preferred Stock, to the extent feasible, (i) at least 20 days' prior written notice of the date on which the books of the Corporation shall close or a record shall be taken for such dividend, distribution or subscription rights or for determining rights to vote in respect of any such reorganization, reclassification, consolidation, merger, disposition, dissolution, liquidation or winding up and (ii) in the case of any such reorganization, reclassification, consolidation, merger, disposition, dissolution, liquidation or winding up, at least 20 days' prior written notice of the date when the same shall take place. Such notice in accordance with the foregoing clause (i) shall also specify, in the case of any such dividend, distribution or subscription rights, the date on which the holders of Common Stock shall be entitled thereto and such notice in accordance with the foregoing clause (ii) shall also specify the date on which the holders of Common Stock shall be entitled to exchange their Common Stock for securities or other property deliverable upon such reorganization, reclassification, consolidation, merger, disposition, dissolution, liquidation or winding up, as the case may be.

4.10 Stock to be Reserved. The Corporation will at all times reserve and keep available out of its authorized Common Stock, solely for the purpose of issuance upon the conversion of Convertible Preferred Stock as herein provided, such number of shares of Common Stock as may then be issuable upon the conversion of all outstanding shares of Convertible Preferred Stock. The Corporation covenants that all shares of Common Stock which shall be so issued shall be duly and validly issued and fully paid and nonassessable and free from all taxes, liens and charges with respect to the issue thereof, and, without limiting the generality of the foregoing, the Corporation covenants that it will from time to time take all such action as may be requisite to assure

that the par value per share of the Common Stock is at all times equal to or less than the Conversion Price in effect at the time. The Corporation will take all such action as may be necessary to assure that all such shares of Common Stock may be so issued without violation of an applicable law or regulation, or of any requirement of any national securities exchange upon which the Common Stock may be listed. The Corporation will not take any action which results in any adjustment of the Conversion Price if the total number of shares of Common Stock issued and issuable after such action upon conversion of the Convertible Preferred Stock would exceed the total number of shares of Common Stock then authorized by the Certificate of Incorporation.

4.11 No Reissuance of Convertible Preferred Stock. Shares of Convertible Preferred Stock which are converted into shares of Common Stock as provided herein shall not be reissued.

4.12 Issue Tax. The issuance of certificates for shares of Common Stock upon conversion of Convertible Preferred Stock shall be made without charge to the holders thereof for any issuance tax in respect thereof, provided that the Corporation shall not be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of any certificate in a name other than that of the holder of the Convertible Preferred Stock which is being converted.

4.13 Closing of Books. The Corporation will at no time close its transfer books against the transfer of any Convertible Preferred Stock or of any shares of Common Stock issued or issuable upon the conversion of any shares of Convertible Preferred Stock in any manner which interferes with the timely conversion of such Convertible Preferred Stock, except as may otherwise be required to comply with applicable securities laws.

4.14 Mandatory Conversion. If at any time the Corporation shall effect a firm commitment underwritten public offering of shares of Common Stock by a reputable underwriter reasonably acceptable to a majority of the Convertible Preferred Stock (which shall be evidenced by vote or written consent of holders of at least fifty-one percent (51%) of the outstanding shares of Convertible Preferred Stock) pursuant to an effective registration statement filed under the Securities Act of 1933, as amended, with a per share offering price equal to or greater than the greater of $4.40 or 250% of the Conversion Price then in effect for the Series C Preferred Stock (subject to adjustment for stock splits, stock dividends and the like), which results in aggregate gross proceeds to the Corporation of at least $50,000,000 (a "**Qualified Public Offering**"), then effective upon the closing of such Qualified Public Offering, all outstanding shares of Convertible Preferred Stock shall automatically convert to shares of Common Stock on the basis set forth in this Section 4 (but not any Accrued Dividends with respect to Convertible Preferred Stock, which Accrued Dividends shall be paid in cash upon any such conversion). If at any time the holders of a majority in interest of the then outstanding shares of Convertible Preferred Stock, voting together as a class, shall exercise their rights to convert such shares, all outstanding shares of Convertible Preferred Stock shall, at the option of the Corporation, convert to shares of Common Stock on the basis set forth herein.

4.15. Waiver. Notwithstanding anything to the contrary herein, any adjustment in the Conversion Price set forth in this Section 4 may be waived in its entirety as to any series of Convertible Preferred Stock by the vote of holders of at least fifty-one percent (51%) of the outstanding shares of such series of Convertible Preferred Stock (as determined immediately prior to the action causing such adjustment).

5. Termination of Provisions Upon Qualified Public Offering. Notwithstanding anything to the contrary contained herein, the rights, privileges and preferences granted to the holders of Convertible Preferred Stock, as the case may be, as set forth in Section 1 (Dividends), Section 2 (Liquidation) and Section 3 (Voting), shall terminate and be of no further force and effect upon the mandatory conversion of the Convertible Preferred Stock in accordance with Section 4.14.

6. Amendments. Except as specifically set forth herein, no provision of these terms of the Convertible Preferred Stock may be amended, modified or waived without the written consent or affirmative vote of the holders of at least fifty-one percent (51%) of the then outstanding shares of any series of Convertible Preferred Stock as to which such provision is applicable before or after such amendment, modification or waiver is effective.

FIFTH: Subject to any additional vote required by the Certificate of Incorporation or Bylaws, in furtherance and not in limitation of the powers conferred by statute, the Board of Directors is expressly authorized to make, repeal, alter, amend and rescind any or all of the Bylaws of the Corporation.

SIXTH: Subject to any additional vote required by the Certificate of Incorporation, the number of directors of the Corporation shall be determined in the manner set forth in the Bylaws of the Corporation.

SEVENTH: Elections of directors need not be by written ballot unless the Bylaws of the Corporation shall so provide.

EIGHTH: Meetings of stockholders may be held within or without the State of Delaware, as the Bylaws of the Corporation may provide. The books of the Corporation may be kept outside the State of Delaware at such place or places as may be designated from time to time by the Board of Directors or in the Bylaws of the Corporation.

NINTH: To the fullest extent permitted by law, a director of the Corporation shall not be personally liable to the Corporation or its stockholders for monetary damages for breach of fiduciary duty as a director. If the General Corporation Law or any other law of the State of Delaware is hereafter amended to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of a director of the Corporation shall be eliminated or limited to the fullest extent permitted by the General Corporation Law as so amended.

Any repeal or modification of the foregoing provisions of this Article Ninth shall not adversely affect any right or protection of a director of the Corporation existing at the time of, or increase the liability of any director of the Corporation with respect to any acts or omissions of such director occurring prior to, such repeal or modification.

TENTH: The following indemnification and expense advancement provisions shall apply to the persons enumerated below.

1. Right to Indemnification of Directors and Officers. The Corporation shall indemnify and hold harmless, to the fullest extent permitted by applicable law as it presently exists or may hereafter be amended, any person (an "**Indemnified Person**") who was or is made or is threatened to be made a party or is otherwise involved in any action, suit or proceeding, whether civil, criminal, administrative or investigative (a "**Proceeding**"), by reason of the fact

that such person, or a person for whom such person is the legal representative, is or was a director or officer of the Corporation or, while a director or officer of the Corporation, is or was serving at the request of the Corporation as a director, officer, employee or agent of another corporation or of a partnership, joint venture, limited liability company, trust, enterprise or nonprofit entity, including service with respect to employee benefit plans, against all liability and loss suffered and expenses (including attorneys' fees) reasonably incurred by such Indemnified Person in such Proceeding. Notwithstanding the preceding sentence, except as otherwise provided in Section 3 of this Article Tenth, the Corporation shall be required to indemnify an Indemnified Person in connection with a Proceeding (or part thereof) commenced by such Indemnified Person only if the commencement of such Proceeding (or part thereof) by the Indemnified Person was authorized in advance by the Board of Directors.

2. Prepayment of Expenses of Directors and Officers. The Corporation shall pay the expenses (including attorneys' fees) incurred by an Indemnified Person in defending any

Proceeding in advance of its final disposition, provided, however, that, to the extent required by law, such payment of expenses in advance of the final disposition of the Proceeding shall be made only upon receipt of an undertaking by the Indemnified Person to repay all amounts advanced if it should be ultimately determined that the Indemnified Person is not entitled to be indemnified under this Article Tenth or otherwise.

3. Claims by Directors and Officers. If a claim for indemnification or advancement of expenses under this Article Tenth is not paid in full within 30 days after a written claim therefor by the Indemnified Person has been received by the Corporation, the Indemnified Person may file suit to recover the unpaid amount of such claim and, if successful in whole or in part, shall be entitled to be paid the expense of prosecuting such claim to the fullest extent permitted by law. In any such action the Corporation shall have the burden of proving that the Indemnified Person is not entitled to the requested indemnification or advancement of expenses under applicable law.

4. Indemnification of Employees and Agents. The Corporation may indemnify and advance expenses to any person who was or is made or is threatened to be made or is otherwise involved in any Proceeding by reason of the fact that such person, or a person for whom such person is the legal representative, is or was an employee or agent of the Corporation or, while an employee or agent of the Corporation, is or was serving at the request of the Corporation as a director, officer, employee or agent of another corporation or of a partnership, joint venture, limited liability company, trust, enterprise or nonprofit entity, including service with respect to employee benefit plans, against all liability and loss suffered and expenses (including attorney's fees) reasonably incurred by such person in connection with such Proceeding. The ultimate determination of entitlement to indemnification of persons who are non-director or officer employees or agents shall be made in such manner as is determined by the Board of Directors in its sole discretion. Notwithstanding the foregoing sentence, the Corporation shall not be required to indemnify a person in connection with a Proceeding initiated by such person if the Proceeding was not authorized in advance by the Board of Directors.

5. Advancement of Expenses of Employees and Agents. The Corporation may pay the expenses (including attorney's fees) incurred by an employee or agent in defending any Proceeding in advance of its final disposition on such terms and conditions as may be determined by the Board of Directors.

6. Non-Exclusivity of Rights. The rights conferred on any person by this Article Tenth shall not be exclusive of any other rights which such person may have or hereafter acquire under any statute, provision of the certificate of incorporation, these by-laws, agreement, vote of stockholders or disinterested directors or otherwise.

7. Other Indemnification or Advancement. The Corporation's obligation, if any, to indemnify or advance expenses to any person who was or is serving at its request as a director, officer or employee of another Corporation, partnership, limited liability company, joint venture, trust, organization or other enterprise shall be reduced by any amount such person may collect as indemnification or advancement, respectively, from such other Corporation, partnership, limited liability company, joint venture, trust, organization or other enterprise.

8. Insurance. The Board of Directors may, to the full extent permitted by applicable law as it presently exists, or may hereafter be amended from time to time, authorize an appropriate officer or officers to purchase and maintain at the Corporation's expense insurance: (a) to indemnify the Corporation for any obligation which it incurs as a result of the indemnification of directors, officers and employees under the provisions of this Article Tenth; and (b) to indemnify or insure directors, officers and employees against liability in instances in which they may not otherwise be indemnified by the Corporation under the provisions of this Article Tenth.

9. Amendment or Repeal. Any amendment, repeal or modification of the foregoing provisions of this Article Tenth shall not adversely affect any right or protection hereunder of any person in respect of any act or omission occurring prior to the time of such amendment, repeal or modification. The rights provided hereunder shall inure to the benefit of any Indemnified Person and such person's heirs, executors and administrators.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, this Restated Certificate of Incorporation has been executed by the President and Chief Executive Officer of this corporation on this 6th day of April, 2011.

By: /s/ Robert J. Mulroy
Robert J. Mulroy
President and Chief Executive Officer

Exhibit 3.2

BYLAWS

OF

MERRIMACK PHARMACEUTICALS, INC.

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ARTICLE I

STOCKHOLDERS

1.1 Place of Meetings. All meetings of stockholders shall be held at such place as may be designated from time to time by the Board of Directors, the Chairman of the Board, the Chief Executive Officer or the President or, if not so designated, at the principal office of the corporation. The Board of Directors may, in its sole discretion, determine that a meeting shall not be held at any place, but may instead be held solely by means of remote communication in a manner consistent with the General Corporation Law of the State of Delaware.

1.2 Annual Meeting. The annual meeting of stockholders for the election of directors and for the transaction of such other business as may properly be brought before the meeting shall be held on a date and at a time designated by the Board of Directors, the Chairman of the Board, the Chief Executive Officer or the President (which date shall not be a legal holiday in the place where the meeting is to be held).

1.3 Special Meetings. Special meetings of stockholders for any purpose or purposes may be called at any time by only the Board of Directors, the Chairman of the Board, the Chief Executive Officer or the President, and shall be called by the Secretary, or in case of the death, absence, incapacity or refusal of the Secretary, by another officer, if the holders of at least 10 percent of all the votes entitled to be cast on any issue to be considered at the proposed special meeting sign, date and deliver to the Secretary one or more written demands for the meeting describing the purpose for which it is to be held. The Board of Directors may postpone or reschedule any previously scheduled special meeting of stockholders. Business transacted at any special meeting of stockholders shall be limited to matters relating to the purpose or purposes stated in the notice of meeting.

1.4 Notice of Meetings. Except as otherwise provided by law, notice of each meeting of stockholders, whether annual or special, shall be given not less than 10 nor more than 60 days before the date of the meeting to each stockholder entitled to vote at such meeting. Without limiting the manner by which notice otherwise may be given to stockholders, any notice shall be effective if given by a form of electronic transmission consented to (in a manner consistent with the General Corporation Law of the State of Delaware) by the stockholder to whom the notice is given. The notices of all meetings shall state the place , if any, date and time of the meeting and the means of remote communications, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at such meeting. The notice of a special meeting shall state, in addition, the purpose or purposes for which the meeting is called. If notice is given by mail, such notice shall be deemed given when deposited in the United States mail, postage prepaid, directed to the stockholder at such stockholder's address as it appears on the records of the corporation. If notice is given by electronic transmission, such notice shall be deemed given at the time specified in Section 232 of the General Corporation Law of the State of Delaware.

1.5 Voting List. The Secretary shall prepare, at least 10 days before every meeting of stockholders, a complete list of the stockholders entitled to vote at the meeting, arranged in alphabetical order, and showing the address of each stockholder and the number of shares registered in the name of each stockholder. Such list shall be open to the examination of any

stockholder, for any purpose germane to the meeting, for a period of at least 10 days prior to the meeting: (a) on a reasonably accessible electronic network, provided that the information required to gain access to such list is provided with the notice of the meeting, or (b) during ordinary business hours, at the principal place of business of the corporation. If the meeting is to be held at a physical location (and not solely by means of remote communication), then the list shall be produced and kept at the time and place of the meeting during the whole time thereof, and may be inspected by any stockholder who is present. If the meeting is to be held solely by means of remote communication, then the list shall also be open to the examination of any stockholder during the whole time of the meeting on a reasonably accessible electronic network, and the information required to access such list shall be provided with the notice of the meeting. The list shall presumptively determine the identity of the stockholders entitled to vote at the meeting and the number of shares held by each of them.

1.6 Quorum. Except as otherwise provided by law, the Certificate of Incorporation or these Bylaws, the holders of a majority in voting power of the shares of the capital stock of the corporation issued and outstanding and entitled to vote at the meeting, present in person, present by means of remote communication in a manner, if any, authorized by the Board of Directors in its sole discretion, or represented by proxy, shall constitute a quorum for the

transaction of business; provided, however, that where a separate vote by a class or classes or series of capital stock is required by law or the Certificate of Incorporation, the holders of a majority in voting power of the shares of such class or classes or series of the capital stock of the corporation issued and outstanding and entitled to vote on such matter, present in person, present by means of remote communication in a manner, if any, authorized by the Board of Directors in its sole discretion, or represented by proxy, shall constitute a quorum entitled to take action with respect to the vote on such matter. A quorum, once established at a meeting, shall not be broken by the withdrawal of enough votes to leave less than a quorum.

1.7 Adjournments. Any meeting of stockholders may be adjourned from time to time to any other time and to any other place at which a meeting of stockholders may be held under these Bylaws by the chairman of the meeting or by the stockholders present or represented at the meeting and entitled to vote, although less than a quorum. It shall not be necessary to notify any stockholder of any adjournment of less than 30 days if the time and place, if any, of the adjourned meeting, and the means of remote communication, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at such adjourned meeting, are announced at the meeting at which adjournment is taken, unless after the adjournment a new record date is fixed for the adjourned meeting. At the adjourned meeting, the corporation may transact any business which might have been transacted at the original meeting.

1.8 Voting and Proxies. Each stockholder shall have one vote for each share of stock entitled to vote held of record by such stockholder and a proportionate vote for each fractional share so held, unless otherwise provided by law or the Certificate of Incorporation. Each stockholder of record entitled to vote at a meeting of stockholders, or to express consent or dissent to corporate action without a meeting, may vote or express such consent or dissent in person (including by means of remote communications, if any, by which stockholders may be deemed to be present in person and vote at such meeting) or may authorize another person or persons to vote or act for such stockholder by a proxy executed or transmitted in a manner permitted by the General Corporation Law of the State of Delaware by the stockholder or such

stockholder's authorized agent and delivered (including by electronic transmission) to the Secretary of the corporation. No such proxy shall be voted or acted upon after three years from the date of its execution, unless the proxy expressly provides for a longer period.

1.9 Action at Meeting. When a quorum is present at any meeting, any matter other than the election of directors to be voted upon by the stockholders at such meeting shall be decided by the vote of the holders of shares of stock having a majority in voting power of the votes cast by the holders of all of the shares of stock present or represented at the meeting and voting affirmatively or negatively on such matter (or if there are two or more classes or series of stock entitled to vote as separate classes, then in the case of each such class or series, the holders of a majority in voting power of the shares of stock of that class or series present or represented at the meeting and voting affirmatively or negatively on such matter), except when a different vote is required by law, the Certificate of Incorporation or these Bylaws. When a quorum is present at any meeting, any election by stockholders of directors shall be determined by a plurality of the votes cast by the stockholders entitled to vote on the election.

1.10 Conduct of Meetings.

(a) Chairman of Meeting. Meetings of stockholders shall be presided over by the Chairman of the Board, if any, or in the Chairman's absence by the Vice Chairman of the Board, if any, or in the Vice Chairman's absence by the Chief Executive Officer, or in the Chief Executive Officer's absence, by the President, or in the President's absence by a Vice President, or in the absence of all of the foregoing persons by a chairman designated by the Board of Directors, or in the absence of such designation by a chairman chosen by vote of the stockholders at the meeting. The Secretary shall act as secretary of the meeting, but in the Secretary's absence the chairman of the meeting may appoint any person to act as secretary of the meeting.

(b) Rules, Regulations and Procedures. The Board of Directors may adopt by resolution such rules, regulations and procedures for the conduct of any meeting of stockholders of the corporation as it shall deem appropriate including, without limitation, such guidelines and procedures as it may deem appropriate regarding the participation by means of remote communication of stockholders and proxyholders not physically present at a meeting. Except to the extent inconsistent with such rules, regulations and procedures as adopted by the Board of Directors, the chairman of any meeting of stockholders shall have the right and authority to prescribe such rules, regulations and procedures and to do all such acts as, in the judgment of such chairman, are appropriate for the proper conduct of the meeting. Such rules, regulations or procedures, whether adopted by the Board of Directors or prescribed by the chairman of the meeting, may include, without limitation, the following: (i) the establishment of an agenda or order of business for the meeting; (ii) rules and procedures for maintaining order at the meeting and the safety of those present; (iii) limitations on attendance at or participation in the meeting to stockholders of record of the corporation, their duly authorized and constituted proxies or such other persons as shall be determined; (iv) restrictions on entry to the meeting after the time fixed for the commencement thereof; and (v) limitations on the time allotted to questions or comments by participants. Unless and to the extent determined by the Board of Directors or the chairman of the meeting, meetings of stockholders shall not be required to be held in accordance with the rules of parliamentary procedure.

1.11 Action without Meeting.

(a) Taking of Action by Consent. Any action required or permitted to be taken at any annual or special meeting of stockholders of the corporation may be taken without a meeting, without prior notice and without a vote, if a consent in writing, setting forth the action so taken, is signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote on such action were present and voted. Except as otherwise provided by the Certificate of Incorporation, stockholders may act by written consent to elect directors; provided, however, that, if such consent is less than unanimous, such action by written consent may be in lieu of holding an annual meeting only if all of the directorships to which directors could be elected at an annual meeting held at the effective time of such action are vacant and are filled by such action.

(b) Electronic Transmission of Consents. A telegram, cablegram or other electronic transmission consenting to an action to be taken and transmitted by a stockholder or proxyholder, or by a person or persons authorized to act for a stockholder or proxyholder, shall be deemed to be written, signed and dated for the purposes of this section, provided that any such telegram, cablegram or other electronic transmission sets forth or is delivered with information from which the corporation can determine (i) that the telegram, cablegram or other electronic transmission was transmitted by the stockholder or proxyholder or by a person or persons authorized to act for the stockholder or proxyholder and (ii) the date on which such stockholder or proxyholder or

authorized person or persons transmitted such telegram, cablegram or electronic transmission. The date on which such telegram, cablegram or electronic transmission is transmitted shall be deemed to be the date on which such consent was signed. No consent given by telegram, cablegram or other electronic transmission shall be deemed to have been delivered until such consent is reproduced in paper form and until such paper form shall be delivered to the corporation by delivery to its registered office in the State of Delaware, its principal place of business or an officer or agent of the corporation having custody of the book in which proceedings of meetings of stockholders are recorded. Delivery made to a corporation's registered office shall be made by hand or by certified or registered mail, return receipt requested. Notwithstanding the foregoing limitations on delivery, consents given by telegram, cablegram or other electronic transmission may be otherwise delivered to the principal place of business of the corporation or to an officer or agent of the corporation having custody of the book in which proceedings of meetings of stockholders are recorded if, to the extent and in the manner provided by resolution of the Board of Directors. Any copy, facsimile or other reliable reproduction of a consent in writing may be substituted or used in lieu of the original writing for any and all purposes for which the original writing could be used, provided that such copy, facsimile or other reproduction shall be a complete reproduction of the entire original writing.

(c) Notice of Taking of Corporate Action. Prompt notice of the taking of corporate action without a meeting by less than unanimous written consent shall be given to those stockholders who have not consented in writing and who, if the action had been taken at a meeting, would have been entitled to notice of the meeting if the record date for such meeting had been the date that written consents signed by a sufficient number of holders to take the action were delivered to the corporation.

ARTICLE II

DIRECTORS

2.1 General Powers. The business and affairs of the corporation shall be managed by or under the direction of a Board of Directors, who may exercise all of the powers of the corporation except as otherwise provided by law or the Certificate of Incorporation.

2.2 Number, Election and Qualification. Subject to the rights of holders of any series of Preferred Stock to elect directors, the number of directors of the corporation shall be established from time to time by the stockholders or the Board of Directors. The directors shall be elected at the annual meeting of stockholders by such stockholders as have the right to vote on such election. Election of directors need not be by written ballot. Directors need not be stockholders of the corporation.

2.3 Chairman of the Board; Vice Chairman of the Board. The Board of Directors may appoint from its members a Chairman of the Board and a Vice Chairman of the Board, neither of whom need be an employee or officer of the corporation. If the Board of Directors appoints a Chairman of the Board, such Chairman shall perform such duties and possess such powers as are assigned by the Board of Directors and, if the Chairman of the Board is also designated as the corporation's Chief Executive Officer, shall have the powers and duties of the Chief Executive Officer prescribed in Section 3.7 of these Bylaws. If the Board of Directors appoints a Vice Chairman of the Board, such Vice Chairman shall perform such duties and possess such powers as are assigned by the Board of Directors. Unless otherwise provided by the Board of Directors, the Chairman of the Board or, in the Chairman's absence, the Vice Chairman of the Board, if any, shall preside at all meetings of the Board of Directors.

2.4 Tenure. Each director shall hold office until the next annual meeting of stockholders and until a successor is elected and qualified, or until such director's earlier death, resignation or removal.

2.5 Quorum. The greater of (a) a majority of the directors at any time in office and (b) one-third of the number of directors fixed pursuant to Section 2.2 of these Bylaws shall constitute a quorum of the Board of Directors. If at any meeting of the Board of Directors there shall be less than such a quorum, a majority of the directors present may adjourn the meeting from time to time without further notice other than announcement at the meeting, until a quorum shall be present.

2.6 Action at Meeting. Every act or decision done or made by a majority of the directors present at a meeting of the Board of Directors duly held at which a quorum is present shall be regarded as the act of the Board of Directors, unless a greater number is required by law or by the Certificate of Incorporation.

2.7 Removal. Except as otherwise provided by the General Corporation Law of the State of Delaware, any one or more or all of the directors of the corporation may be removed, with or without cause, by the holders of a majority of the shares then entitled to vote at an election of directors, except that the directors elected by the holders of a particular class or series

of stock may be removed without cause only by vote of the holders of a majority of the outstanding shares of such class or series.

2.8 Vacancies. Subject to the rights of holders of any series of Preferred Stock to elect directors, unless and until filled by the stockholders, any vacancy or newly-created directorship on the Board of Directors, however occurring, may be filled by vote of a majority of the directors then in office, although less than a quorum, or by a sole remaining director. A director elected to fill a vacancy shall be elected for the unexpired term of such director's predecessor in office, and a director chosen to fill a position resulting from a newly-created directorship shall hold office until the next annual meeting of stockholders and until a successor is elected and qualified, or until such director's earlier death, resignation or removal.

2.9 Resignation. Any director may resign by delivering a resignation in writing or by electronic transmission to the corporation at its principal office or to the Chairman of the Board, the Chief Executive Officer, the President or the Secretary. Such resignation shall be effective upon delivery unless it is specified to be effective at some later time or upon the happening of some later event.

2.10 Regular Meetings. Regular meetings of the Board of Directors may be held without notice at such time and place as shall be determined from time to time by the Board of Directors; provided that any director who is absent when such a determination is made shall be given notice of the

determination. A regular meeting of the Board of Directors may be held without notice immediately after and at the same place as the annual meeting of stockholders.

2.11 Special Meetings. Special meetings of the Board of Directors may be held at any time and place designated in a call by the Chairman of the Board, the Chief Executive Officer, the President, two or more directors, or by one director in the event that there is only a single director in office.

2.12 Notice of Special Meetings. Notice of the date, place, if any, and time of any special meeting of directors shall be given to each director by the Secretary or by the officer or one of the directors calling the meeting. Notice shall be duly given to each director (a) in person or by telephone at least 24 hours in advance of the meeting, (b) by sending written notice by reputable overnight courier, telecopy, facsimile or electronic transmission, or delivering written notice by hand, to such director's last known business, home or electronic transmission address at least 48 hours in advance of the meeting, or (c) by sending written notice by first-class mail to such director's last known business or home address at least 72 hours in advance of the meeting. A notice or waiver of notice of a meeting of the Board of Directors need not specify the purposes of the meeting.

2.13 Meetings by Conference Communications Equipment. Directors may participate in meetings of the Board of Directors or any committee thereof by means of conference telephone or other communications equipment by means of which all persons participating in the meeting can hear each other, and participation by such means shall constitute presence in person at such meeting.

2.14 Action by Consent. Any action required or permitted to be taken at any meeting of the Board of Directors or of any committee thereof may be taken without a meeting, if all members of the Board of Directors or committee, as the case may be, consent to the action in writing or by electronic transmission, and the written consents or electronic transmissions are filed with the minutes of proceedings of the Board of Directors or committee. Such filing shall be in paper form if the minutes are maintained in paper form and shall be in electronic form if the minutes are maintained in electronic form.

2.15 Committees. The Board of Directors may designate one or more committees, each committee to consist of one or more of the directors of the corporation with such lawfully delegable powers and duties as the Board of Directors thereby confers, to serve at the pleasure of the Board of Directors. The Board of Directors may designate one or more directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of the committee. In the absence or disqualification of a member of a committee, the member or members of the committee present at any meeting and not disqualified from voting, whether or not such member or members constitute a quorum, may unanimously appoint another member of the Board of Directors to act at the meeting in the place of any such absent or disqualified member. Any such committee, to the extent provided in the resolution of the Board of Directors and subject to the provisions of law, shall have and may exercise all the powers and authority of the Board of Directors in the management of the business and affairs of the corporation and may authorize the seal of the corporation to be affixed to all papers which may require it. Each such committee shall keep minutes and make such reports as the Board of Directors may from time to time request. Except as the Board of Directors may otherwise determine, any committee may make rules for the conduct of its business, but unless otherwise provided by the directors or in such rules, its business shall be conducted as nearly as possible in the same manner as is provided in these Bylaws for the Board of Directors. Except as otherwise provided in the Certificate of Incorporation, these Bylaws, or the resolution of the Board of Directors designating the committee, a committee may create one or more subcommittees, each subcommittee to consist of one or more members of the committee, and delegate to a subcommittee any or all of the powers and authority of the committee.

2.16 Compensation of Directors. Directors may be paid such compensation for their services and such reimbursement for expenses of attendance at meetings as the Board of Directors may from time to time determine. No such payment shall preclude any director from serving the corporation or any of its parent or subsidiary entities in any other capacity and receiving compensation for such service.

ARTICLE III

OFFICERS

3.1 Titles. The officers of the corporation shall consist of a Chief Executive Officer, a President, a Secretary, a Treasurer and such other officers with such other titles as the Board of Directors shall determine, including one or more Vice Presidents, Assistant Treasurers and Assistant Secretaries. The Board of Directors may appoint such other officers as it may deem appropriate.

3.2 Election. The Chief Executive Officer, President, Treasurer and Secretary shall be elected annually by the Board of Directors at its first meeting following the annual meeting of stockholders. Other officers may be appointed by the Board of Directors at such meeting or at any other meeting.

3.3 Qualification. No officer need be a stockholder. Any two or more offices may be held by the same person.

3.4 Tenure. Except as otherwise provided by law, by the Certificate of Incorporation or by these Bylaws, each officer shall hold office until such officer's successor is elected and qualified, unless a different term is specified in the resolution electing or appointing such officer, or until such officer's earlier death, resignation or removal.

3.5 Resignation and Removal. Any officer may resign by delivering a written resignation to the corporation at its principal office or to the Chief Executive Officer, the President or the Secretary. Such resignation shall be effective upon receipt unless it is specified to be effective at some later time or upon the happening of some later event. Any officer may be removed at any time, with or without cause, by vote of a majority of the directors then in office. Except as the Board of Directors may otherwise determine, no officer who resigns or is removed shall have any right to any compensation as an officer for any period following such officer's resignation or removal, or any right to damages on account of such removal, whether such officer's compensation be by the month or by the year or otherwise, unless such compensation is expressly provided for in a duly authorized written agreement with the corporation.

3.6 Vacancies. The Board of Directors may fill any vacancy occurring in any office for any reason and may, in its discretion, leave unfilled for such period as it may determine any offices other than those of Chief Executive Officer, President, Treasurer and Secretary. Each such successor shall hold

office for the unexpired term of such officer's predecessor and until a successor is elected and qualified, or until such officer's earlier death, resignation or removal.

3.7 President; Chief Executive Officer. Unless the Board of Directors has designated another person as the corporation's Chief Executive Officer, the President shall be the Chief Executive Officer of the corporation. The Chief Executive Officer shall have general charge and supervision of the business of the corporation subject to the direction of the Board of Directors, and shall perform all duties and have all powers that are commonly incident to the office of chief executive or that are delegated to such officer by the Board of Directors. The President shall perform such other duties and shall have such other powers as the Board of Directors or the Chief Executive Officer (if the President is not the Chief Executive Officer) may from time to time prescribe. In the event of the absence, inability or refusal to act of the Chief Executive Officer or the President (if the President is not the Chief Executive Officer), the Vice President (or if there shall be more than one, the Vice Presidents in the order determined by the Board of Directors) shall perform the duties of the Chief Executive Officer and when so performing such duties shall have all the powers of and be subject to all the restrictions upon the Chief Executive Officer.

3.8 Vice Presidents. Each Vice President shall perform such duties and possess such powers as the Board of Directors or the Chief Executive Officer may from time to time

prescribe. The Board of Directors may assign to any Vice President the title of Executive Vice President, Senior Vice President or any other title selected by the Board of Directors.

3.9 Secretary and Assistant Secretaries. The Secretary shall perform such duties and shall have such powers as the Board of Directors or the Chief Executive Officer may from time to time prescribe. In addition, the Secretary shall perform such duties and have such powers as are incident to the office of the secretary, including without limitation the duty and power to give notices of all meetings of stockholders and special meetings of the Board of Directors, to attend all meetings of stockholders and the Board of Directors and keep a record of the proceedings, to maintain a stock ledger and prepare lists of stockholders and their addresses as required, to be custodian of corporate records and the corporate seal and to affix and attest to the same on documents.

Any Assistant Secretary shall perform such duties and possess such powers as the Board of Directors, the Chief Executive Officer or the Secretary may from time to time prescribe. In the event of the absence, inability or refusal to act of the Secretary, the Assistant Secretary (or if there shall be more than one, the Assistant Secretaries in the order determined by the Board of Directors) shall perform the duties and exercise the powers of the Secretary.

In the absence of the Secretary or any Assistant Secretary at any meeting of stockholders or directors, the chairman of the meeting shall designate a temporary secretary to keep a record of the meeting.

3.10 Treasurer and Assistant Treasurers. The Treasurer shall perform such duties and shall have such powers as may from time to time be assigned by the Board of Directors or the Chief Executive Officer. In addition, the Treasurer shall perform such duties and have such powers as are incident to the office of treasurer, including without limitation the duty and power to keep and be responsible for all funds and securities of the corporation, to deposit funds of the corporation in depositories selected in accordance with these Bylaws, to disburse such funds as ordered by the Board of Directors, to make proper accounts of such funds, and to render as required by the Board of Directors statements of all such transactions and of the financial condition of the corporation.

The Assistant Treasurers shall perform such duties and possess such powers as the Board of Directors, the Chief Executive Officer or the Treasurer may from time to time prescribe. In the event of the absence, inability or refusal to act of the Treasurer, the Assistant Treasurer (or if there shall be more than one, the Assistant Treasurers in the order determined by the Board of Directors) shall perform the duties and exercise the powers of the Treasurer.

3.11 Salaries. Officers of the corporation shall be entitled to such salaries, compensation or reimbursement as shall be fixed or allowed from time to time by the Board of Directors.

3.12 Delegation of Authority. The Board of Directors may from time to time delegate the powers or duties of any officer to any other officer or agent, notwithstanding any provision hereof.

ARTICLE IV

CAPITAL STOCK

4.1 Issuance of Stock. Subject to the provisions of the Certificate of Incorporation, the whole or any part of any unissued balance of the authorized capital stock of the corporation or the whole or any part of any shares of the authorized capital stock of the corporation held in the corporation's treasury may be issued, sold, transferred or otherwise disposed of by vote of the Board of Directors in such manner, for such lawful consideration and on such terms as the Board of Directors may determine.

4.2 Stock Certificates; Uncertificated Shares. The shares of the corporation shall be represented by certificates, provided that the Board of Directors may provide by resolution or resolutions that some or all of any or all classes or series of the corporation's stock shall be uncertificated shares. Every holder of stock of the corporation represented by certificates shall be entitled to have a certificate, in such form as may be prescribed by law and by the Board of Directors, representing the number of shares held by such holder registered in certificate form. Each such certificate shall be signed in a manner that complies with Section 158 of the General Corporation Law of the State of Delaware.

Each certificate for shares of stock which are subject to any restriction on transfer pursuant to the Certificate of Incorporation, these Bylaws, applicable securities laws or any agreement among any number of stockholders or among such holders and the corporation shall have conspicuously noted on the face or back of the certificate either the full text of the restriction or a statement of the existence of such restriction.

If the corporation shall be authorized to issue more than one class of stock or more than one series of any class, the powers, designations, preferences and relative, participating, optional or other special rights of each class of stock or series thereof and the qualifications, limitations or restrictions of such

preferences and/or rights shall be set forth in full or summarized on the face or back of each certificate representing shares of such class or series of stock, provided that in lieu of the foregoing requirements there may be set forth on the face or back of each certificate representing shares of such class or series of stock a statement that the corporation will furnish without charge to each stockholder who so requests a copy of the full text of the powers, designations, preferences and relative, participating, optional or other special rights of each class of stock or series thereof and the qualifications, limitations or restrictions of such preferences and/or rights.

Within a reasonable time after the issuance or transfer of uncertificated shares, the corporation shall send to the registered owner thereof a written notice containing the information required to be set forth or stated on certificates pursuant to Sections 151, 202(a) or 218(a) of the General Corporation Law of the State of Delaware or, with respect to Section 151 of the General Corporation Law of the State of Delaware, a statement that the corporation will furnish without charge to each stockholder who so requests the powers, designations, preferences and relative participating, optional or other special rights of each class of stock or series thereof and the qualifications, limitations or restrictions of such preferences and/or rights.

4.3 Transfers. Shares of stock of the corporation shall be transferable in the manner prescribed by law and in these Bylaws. Transfers of shares of stock of the corporation shall be made only on the books of the corporation or by transfer agents designated to transfer shares of stock of the corporation. Subject to applicable law, shares of stock represented by certificates shall be transferred only on the books of the corporation by the surrender to the corporation or its transfer agent of the certificate representing such shares properly endorsed or accompanied by a written assignment or power of attorney properly executed, and with such proof of authority or the authenticity of signature as the corporation or its transfer agent may reasonably require. Except as may be otherwise required by law, by the Certificate of Incorporation or by these Bylaws, the corporation shall be entitled to treat the record holder of stock as shown on its books as the owner of such stock for all purposes, including the payment of dividends and the right to vote with respect to such stock, regardless of any transfer, pledge or other disposition of such stock until the shares have been transferred on the books of the corporation in accordance with the requirements of these Bylaws.

4.4 Lost, Stolen or Destroyed Certificates. The corporation may issue a new certificate of stock in place of any previously issued certificate alleged to have been lost, stolen or destroyed, upon such terms and conditions as the Board of Directors may prescribe, including the presentation of reasonable evidence of such loss, theft or destruction and the giving of such indemnity and posting of such bond as the Board of Directors may require for the protection of the corporation or any transfer agent or registrar.

4.5 Record Date. The Board of Directors may fix in advance a date as a record date for the determination of the stockholders entitled to notice of or to vote at any meeting of stockholders or to express consent (or dissent) to corporate action without a meeting, or entitled to receive payment of any dividend or other distribution or allotment of any rights in respect of any change, conversion or exchange of stock, or for the purpose of any other lawful action. Such record date shall not precede the date on which the resolution fixing the record date is adopted, and such record date shall not be more than 60 nor less than 10 days before the date of such meeting, nor more than 10 days after the date of adoption of a record date for a consent without a meeting, nor more than 60 days prior to any other action to which such record date relates.

If no record date is fixed, the record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be at the close of business on the day before the day on which notice is given, or, if notice is waived, at the close of business on the day before the day on which the meeting is held. If no record date is fixed, the record date for determining stockholders entitled to express consent to corporate action without a meeting, when no prior action by the Board of Directors is necessary, shall be the day on which the first consent is properly delivered to the corporation. If no record date is fixed, the record date for determining stockholders for any other purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution relating to such purpose.

A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting; provided, however, that the Board of Directors may fix a new record date for the adjourned meeting.

4.6 Regulations. The issue, transfer, conversion and registration of shares of stock of the corporation shall be governed by such other regulations as the Board of Directors may establish.

ARTICLE V

GENERAL PROVISIONS

5.1 Fiscal Year. Except as from time to time otherwise designated by the Board of Directors, the fiscal year of the corporation shall begin on the first day of January of each year and end on the last day of December in each year.

5.2 Corporate Seal. The corporate seal shall be in such form as shall be approved by the Board of Directors.

5.3 Waiver of Notice. Whenever notice is required to be given by law, by the Certificate of Incorporation or by these Bylaws, a written waiver, signed by the person entitled to notice, or a waiver by electronic transmission by the person entitled to notice, whether before, at or after the time of the event for which notice is to be given, shall be deemed equivalent to notice required to be given to such person. Neither the business nor the purpose of any meeting need be specified in any such waiver. Attendance of a person at a meeting shall constitute a waiver of notice of such meeting, except when the person attends a meeting for the express purpose of objecting at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened.

5.4 Voting of Securities. Except as the Board of Directors may otherwise designate, the Chief Executive Officer, the President or the Treasurer may waive notice of, vote, or appoint any person or persons to vote, on behalf of the corporation at, and act as, or appoint any person or persons to act as, proxy or attorney-in-fact for this corporation (with or without power of substitution) at, any meeting of stockholders or securityholders of any other entity, the securities of which may be held by this corporation.

5.5 Evidence of Authority. A certificate by the Secretary, or an Assistant Secretary, or a temporary Secretary, as to any action taken by the stockholders, directors, a committee or any officer or representative of the corporation shall as to all persons who rely on the certificate in good faith be conclusive evidence of such action.

5.6 Certificate of Incorporation. All references in these Bylaws to the Certificate of Incorporation shall be deemed to refer to the Certificate of Incorporation of the corporation, as amended and in effect from time to time.

5.7 Severability. Any determination that any provision of these Bylaws is for any reason inapplicable, illegal or ineffective shall not affect or invalidate any other provision of these Bylaws.

5.8 Pronouns. All pronouns used in these Bylaws shall be deemed to refer to the masculine, feminine or neuter, singular or plural, as the identity of the person or persons may require.

ARTICLE VI

AMENDMENTS

6.1 By the Board of Directors. These Bylaws may be altered, amended or repealed, in whole or in part, or new bylaws may be adopted by the Board of Directors.

6.2 By the Stockholders. These Bylaws may be altered, amended or repealed, in whole or in part, or new bylaws may be adopted by the affirmative vote of the holders of a majority of the shares of the capital stock of the corporation issued and outstanding and entitled to vote at any annual meeting of stockholders, or at any special meeting of stockholders, provided notice of such alteration, amendment, repeal or adoption of new bylaws shall have been stated in the notice of such special meeting.

FIFTH AMENDED AND RESTATED
INVESTOR RIGHTS AGREEMENT

This Fifth Amended and Restated Investor Rights Agreement (this "Agreement") is made as of this 6th day of April, 2011 by and among Merrimack Pharmaceuticals, Inc., a Delaware corporation (the "Company"), and the individuals and entities listed on the signature pages hereto (each, an "Investor" and collectively, the "Investors").

WHEREAS, the Company and certain of the Investors are parties to a Fourth Amended and Restated Investor Rights Agreement, dated as of August 25, 2010, as amended on November 16, 2010 (the "Prior Agreement"), and desire to amend and restate the Prior Agreement as set forth herein; and

WHEREAS, the Company and certain of the Investors are parties to a Series G Purchase Agreement (as defined below), and the execution and delivery of this Agreement is a condition to the closing of the transactions contemplated by the Series G Purchase Agreement.

NOW, THEREFORE, in consideration of the mutual promises and obligations set forth herein, the parties hereby agree as follows:

A. Termination of Prior Agreement. The parties hereto hereby acknowledge and agree that the Prior Agreement is hereby amended, restated and superseded in all respects by this Agreement.

B. Investor Rights Agreement.

1. Certain Defined Terms. As used in this Agreement, the following terms shall have the following respective meanings:

"Charter" means the Restated Certificate of Incorporation of the Company.

"Commission" means the Securities and Exchange Commission, or any other federal agency at the time administering the Securities Act and the Exchange Act.

"Common Stock" means (a) the Company's common stock, par value $0.01 per share, as authorized on the date of this Agreement, and any other securities into which or for which such Common Stock may be converted or exchanged pursuant to a plan of recapitalization, reorganization, merger, sale of assets or otherwise, and (b) any other securities into which or for which any of the Convertible Preferred Stock may be converted or exchanged pursuant to a plan of recapitalization, reorganization, merger, sale of assets or otherwise.

"Convertible Preferred Stock" means the Series B Preferred Stock, the Series C Preferred Stock, the Series D Preferred Stock, the Series E Preferred Stock, the Series F Preferred Stock and the Series G Preferred Stock.

"Exchange Act" means the Securities Exchange Act of 1934, as amended, or any similar federal statute, and the rules and regulations of the Commission thereunder, all as the same shall be in effect at the time.

"Person" means an individual, corporation, limited liability company, partnership, joint venture, trust, or unincorporated organization, or a government or any agency or political subdivision thereof.

"Predecessor" means Merrimack Pharmaceuticals, Inc., a Massachusetts corporation and predecessor to the Company.

"Registrable Shares" means (i) the shares of Common Stock issued or issuable upon conversion of the shares of Convertible Preferred Stock, (ii) the shares of Common Stock issued or issuable upon exercise of the Warrants or upon conversion of shares of Convertible Preferred Stock issued or issuable upon exercise of the Warrants, and (iii) any other shares of Common Stock of the Company issued in respect of such shares (because of stock splits, stock dividends, reclassifications, recapitalization, or similar events); provided, however, that shares of Common Stock which are Registrable Shares shall cease to be Registrable Shares upon (x) the fifth anniversary of the effective date of the first Registration Statement filed by the Company, (y) any sale pursuant to a Registration Statement or (z) any sale in any manner to a person or entity which, by virtue of Section 10 of this Agreement, is not entitled to the rights provided by this Agreement. Registrable Shares shall not include shares of Common Stock which may be sold by a Stockholder to the public immediately without registration, including shares of Common Stock pursuant to the provisions of Rule 144 promulgated under the Securities Act (or any successor regulation thereto) without violation of the applicable volume limitations.

"Registration Statement" means a registration statement filed by the Company with the Commission for a public offering and sale of securities of the Company (other than a registration statement on Form S-8 or Form S-4, or their successors, or any other form for a limited purpose, or any registration statement covering only securities proposed to be issued in exchange for securities or assets of another corporation).

"Securities Act" means the Securities Act of 1933, as amended, or any similar federal statute, and the rules and regulations of the Commission there under, all as the same shall be in effect at the time.

"Series B Preferred Stock" means the Company's Series B Convertible Preferred Stock, par value $0.01 per share, and any other securities into which or for which such Series B Convertible Preferred Stock may be converted or exchanged pursuant to a plan of recapitalization, reorganization, merger, sale of assets or otherwise.

"Series B Purchase Agreement" means the Fourth Amendment and Restatement of Series B Convertible Preferred Stock Purchase Agreement, dated February 14, 2002, among the Predecessor and the Investors named therein, as amended by certain Letter Amendments thereto.

"Series C Preferred Stock" means the Company's Series C Convertible Preferred Stock, par value $0.01 per share, and any other securities into which or for which such Series C Convertible Preferred Stock may be converted or exchanged pursuant to a plan of recapitalization, reorganization, merger, sale of assets or otherwise.

"Series C Purchase Agreement" means the Series C Convertible Preferred Stock Purchase Agreement, dated December 12, 2003, among the Predecessor and the Purchasers named therein.

"Series D Preferred Stock" means the Company's Series D Convertible Preferred Stock, par value $0.01 per share, and any other securities into which or for which such Series D Convertible Preferred Stock may be converted or exchanged pursuant to a plan of recapitalization, reorganization, merger, sale of assets or otherwise.

"Series D Purchase Agreement" means the Series D Convertible Preferred Stock Purchase Agreement, dated January 26, 2005, among the Predecessor and the Purchasers named therein.

"Series E Preferred Stock" means the Company's Series E Convertible Preferred Stock, par value $0.01 per share, and any other securities into which or for which such Series E Convertible Preferred Stock may be converted or exchanged pursuant to a plan of recapitalization, reorganization, merger, sale of assets or otherwise.

"Series E Purchase Agreement" means the Series E Convertible Preferred Stock Purchase Agreement, dated March 24, 2006, among the Predecessor and the Purchasers named therein.

"Series F Preferred Stock" means the Company's Series F Convertible Preferred Stock, par value $0.01 per share, and any other securities into which or for which such Series F Convertible Preferred Stock may be converted or exchanged pursuant to a plan of recapitalization, reorganization, merger, sale of assets or otherwise.

"Series F Purchase Agreement" means the Series F Convertible Preferred Stock Purchase Agreement, dated November 5, 2007, among the Predecessor and the Purchasers named therein.

"Series G Preferred Stock" means the Company's Series G Convertible Preferred Stock, par value $0.01 per share, and any other securities into which or for which such Series G Convertible Preferred Stock may be converted or exchanged pursuant to a plan of recapitalization, reorganization, merger, sale of assets or otherwise.

"Series G Purchase Agreement" means the Series G Convertible Preferred Stock Purchase Agreement, dated April 6, 2011, among the Company and the Purchasers named therein.

"Shares" means and includes all shares of Common Stock, Convertible Preferred Stock and all other securities of the Company which may be issued in exchange for or in respect of shares of Common Stock or Convertible Preferred Stock (whether by way of stock split, stock dividend, combination, conversion, reclassification, merger, reorganization or any other means) now owned or hereafter acquired.

"Stockholders" means the Investors and any Persons to whom the rights granted to the Investors under this Agreement are transferred as permitted by Section 10 hereof.

"Warrants" means (i) warrants to purchase up to 2,887,299 shares of Common Stock issued pursuant to the Series C Purchase Agreement and (ii) warrants to purchase shares of Series C Preferred Stock and warrants to purchase Common Stock issued to General Electric Capital Corporation.

2. Demand and Shelf Registrations.

(a) Commencing no earlier than six months after the effective date of the first Registration Statement filed by the Company, a Stockholder or Stockholders holding at least 20% of then outstanding Registrable Shares may request, in writing, that the Company effect the registration on Form S-1 or Form S-2 (or any successor form) of Registrable Shares having an aggregate offering price of at least $5,000,000 (based on the then current market price or fair value). If the Stockholder or Stockholders initiating the registration intend to distribute the Registrable Shares by means of an underwriting, they shall so advise the Company in their request. In the event such registration is underwritten, the right of other Stockholders to participate shall be conditioned on such Stockholders' participation in such underwriting. Upon receipt of any such request, the Company shall promptly give written notice of such proposed registration to all Stockholders. Such Stockholders shall have the right, by giving written notice to the Company within 30 days after the Company provides its notice, to elect to have included in such registration such of their Registrable Shares as such Stockholders may request in such notice of election, subject to the approval of the underwriter managing the offering. Thereupon, the Company shall, as expeditiously as possible, use its best efforts to effect the registration, on Form S-1 or Form S-2 (or any successor form), of all Registrable Shares which the Company has been requested to so register. The Company shall not be required to effect more than two (2) registrations pursuant to this Section 2(a), nor shall it be required to effect any such registration within six months after the effective date of any other Registration Statement of the Company.

(b) At any time after the Company becomes eligible to file a Registration Statement on Form S-3 (or any successor form relating to secondary offerings), a Stockholder or Stockholders holding in the aggregate at least 10% of the Registrable Shares may request the Company, in writing, to effect the registration on Form S-3 (or any successor form), of Registrable Shares having an aggregate offering price of at least $2,500,000 (based on the current public market price). Upon receipt of any such request, the Company shall promptly give written notice of such proposed registration to all Stockholders. Such Stockholders shall have the right, by giving written notice to the Company within 30 days after the Company provides its notice, to elect to have included in such registration such of their Registrable Shares as such Stockholders may request in such notice of election. Thereupon, the Company shall, as expeditiously as possible, use its best efforts to effect the registration on Form S-3, or such successor form, of all Registrable Shares which the Company has been requested to register. The Company shall not be required to effect more than 2 registrations pursuant to this Section 2(b) in any 12 month period.

(c) If, at the time of any request to register Registrable Shares pursuant to this Section 2, the Company is engaged or has fixed plans to engage within 90 days of the time of the request in a registered public offering as to which the Stockholders may include Registrable Shares pursuant to Section 3 or

is engaged in any other activity which, in the good faith determination of the Company's Board of Directors, would be adversely affected by the requested registration to the material detriment of the Company, then the Company may at its option direct that such request be delayed for a period not in excess of 6 months from the effective date of such offering or the date of commencement of such other material activity, as the case may be. The Company may not exercise the foregoing right to delay a registration request more than once in any 2 year period.

(d) In the event that Registrable Shares are sold pursuant to a Registration Statement

in an underwritten offering pursuant to this Section 2, the Company agrees to enter into an underwriting agreement containing customary representations and warranties with respect to the business and operations of an issuer of the securities being registered and customary covenants and agreements to be performed by such issuer, including without limitation customary provisions with respect to indemnification by the Company of the underwriters of such offering.

3. "Piggyback" Registration.

(a) If at any time the Company proposes to file a Registration Statement, other than pursuant to Section 2 hereof, it will, prior to such filing, give written notice to all Stockholders of its intention to do so and, upon the written request of a Stockholder or Stockholders given within 10 business days after the Company provides such notice (which request shall state the intended method of disposition of such Registrable Shares), the Company shall use its best efforts to cause all Registrable Shares which the Company has been requested by such Stockholder or Stockholders to register, to be registered under the Securities Act to the extent necessary to permit their sale or other disposition in accordance with the intended methods of distribution specified in the request of such Stockholder or Stockholders; provided that the Company shall have the right to postpone or withdraw any registration effected pursuant to this Section 3 without obligation to any Stockholder.

(b) In connection with any offering under this Section 3 involving an underwriting, the Company shall not be required to include any Registrable Shares in such underwriting unless the requesting Stockholders accept the terms of the underwriting as agreed upon between the Company and the underwriters selected by it.

(c) If in the opinion of the managing underwriter the registration of all, or part of, the Registrable Shares which the holders have requested to be included pursuant to this Section 3 would materially and adversely affect such public offering, then the Company shall be required to include in the underwriting only that number of Registrable Shares, if any, which the managing underwriter believes may be sold without causing such adverse effect, but in no event shall the amount of Registrable Shares included in the offering be reduced below 30% of the total amount of securities included in the offering. If the number of Registrable Shares to be included in the underwriting in accordance with the foregoing is less than the total number of shares which the holders of Registrable Shares have requested to be included, then the holders of Registrable Shares who have requested registration shall participate in the underwriting pro rata based upon their total ownership of the aggregate number of shares requested to be included in such registration by the Stockholders and by holders granted registration rights in accordance with Section 10 (or in any other proportion as agreed upon by all holders entitled to such rights).

4. Registration Procedures.

If and whenever the Company is required by the provisions of this Agreement to use its best efforts to effect the registration of any of the Registrable Shares under the Securities Act, the Company shall as expeditiously as possible:

(a) prepare and file with the Commission a Registration Statement with respect to such Registrable Shares and use its best efforts to cause that Registration Statement to become and remain effective;

(b) prepare and file with the Commission any amendments and supplements to the Registration Statement and the prospectus included in the Registration Statement as may be necessary to keep the Registration Statement effective for a period of not less than 365 days from the effective date;

(c) furnish to each selling Stockholder such reasonable numbers of copies of the prospectus, including a preliminary prospectus, in conformity with the requirements of the Securities Act, and such other documents as the selling Stockholder may reasonably request in order to facilitate the public sale or other disposition of the Registrable Shares owned by the selling Stockholder;

(d) use its best efforts to register or qualify the Registrable Shares covered by the Registration Statement under the securities or "Blue Sky" laws of such states as the selling Stockholders shall reasonably request, and do any and all other acts and things that may be necessary or desirable to enable the selling Stockholders to consummate the public sale or other disposition in such jurisdictions of the Registrable Shares owned by the selling Stockholders; provided, however, that the Company shall not be required in connection with this Section 4(d) to qualify as a foreign corporation, execute a general consent to service of process or subject itself to taxation in any jurisdiction;

(e) in the event of any underwritten public offering, enter into and perform its obligations under an underwriting agreement, in usual and customary form, with the managing underwriter(s) of such offering; and

(f) use its best efforts to furnish, on the date that such Registrable Shares are delivered to the underwriters for sale, if such securities are being sold through underwriters, (i) an opinion, dated as of such date, of the counsel representing the Company for purposes of such registration, in form and substance as is customarily given to underwriters in an underwritten public offering, addressed to the underwriters, if any, and (ii) a letter dated as of such date, from the independent certified public accountants of the Company, in form and substance as is customarily given by independent certified public accountants to underwriters in an underwritten public offering, addressed to the underwriters, in each case also addressed to the selling Stockholders, and to provide copies thereof to the selling Stockholders.

If the Company has delivered preliminary or final prospectuses to the selling Stockholders and after having done so the prospectus is amended to comply with the requirements of the Securities Act, the Company shall promptly notify the selling Stockholders and, if requested, the selling Stockholders shall immediately cease making offers of Registrable Shares and return all prospectuses to the Company. The Company shall promptly provide the selling Stockholders with revised prospectuses and, following receipt of the revised prospectuses, the selling Stockholders shall be free to resume making offers of the Registrable Shares.

5. Allocation Of Expenses. The Company will pay all Registration Expenses of all registrations under this Agreement; provided, however, that if a registration is withdrawn at the request of the Stockholders requesting such registration (other than as a result of material adverse information concerning the business or financial condition of the Company which is made known to the Stockholders after the date on which such registration was requested) and if the requesting Stockholders elect not to have such registration counted as a registration requested under Section 2, the requesting Stockholders shall pay the Registration Expenses of such registration *pro rata* in accordance with the number of their Registrable Shares included in such registration. For purposes of this Section, the term "Registration Expenses" shall mean all expenses incurred by the Company in complying with Section 4 hereof, including, without limitation, all registration and filing fees, exchange listing fees, printing expenses, accounting fees, fees and disbursements of counsel for the Company and the reasonable fees and disbursements of one counsel for the selling Stockholders, but excluding underwriting discounts and selling commissions relating to the Registrable Shares.

6. Indemnification.

(a) In the event of any registration of any of the Registrable Shares under the Securities Act pursuant to this Agreement, the Company will indemnify and hold harmless the seller of such Registrable Shares, each underwriter of such Registrable Shares, and each other person, if any, who controls such seller or underwriter within the meaning of the Securities Act or the Exchange Act against any losses, claims, damages or liabilities, joint or several, to which such seller, underwriter or controlling person may become subject under the Securities Act, the Exchange Act, state securities laws or otherwise, insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon any untrue statement or alleged untrue statement of any material fact contained in any Registration Statement under which such Registrable Shares were registered under the Securities Act, any preliminary prospectus or final prospectus contained in the Registration Statement, or any amendment or supplement to such Registration Statement, or arise out of or are based upon the omission or alleged omission to state a material fact required to be stated therein or necessary to make the statements therein not misleading; and the Company will reimburse such seller, underwriter and each such controlling person for any legal and/or other expenses reasonably incurred by such seller, underwriter or controlling person in connection with investigating or defending any such loss, claim, damage, liability or action; provided, however, that the Company will not be liable in any such case to the extent that any such loss, claim, damage or liability arises out of or is based upon any untrue statement or omission made in such Registration Statement, preliminary prospectus or prospectus, or any such amendment or supplement, in reliance upon and in conformity with information furnished to the Company, in writing, by or on behalf of such seller, underwriter or controlling person specifically for use in the preparation thereof.

(b) In the event of any registration of any of the Registrable Shares under the Securities Act pursuant to this Agreement, each seller of Registrable Shares, severally and not jointly, will indemnify and hold harmless the Company, each of its directors and officers and each underwriter (if any) and each person, if any, who controls the Company or any such underwriter within the meaning of the Securities Act or the Exchange Act, against any losses, claims, damages or liabilities, joint or several, to which the Company, such directors and officers, underwriter or controlling person may become subject under the Securities Act, Exchange Act, state securities laws or otherwise, insofar as such losses, claims, damages or liabilities (or actions in respect thereof)

arise out of or are based upon any untrue statement or alleged untrue statement of a material fact contained in any Registration Statement under which such Registrable Shares were registered under the Securities Act, any preliminary prospectus or final prospectus contained in the Registration Statement, or any amendment or supplement to the Registration Statement, or arise out of or are based upon any omission or alleged omission to state a material fact required to be stated therein or necessary to make the statements therein not misleading, if the statement or omission was made in reliance upon and in conformity with information furnished in writing to the Company by or on behalf of such seller, specifically for use in connection with the preparation of such Registration Statement, prospectus, amendment or supplement; provided, however, that the obligations of such Stockholders hereunder shall be limited to an amount equal to the proceeds to each Stockholder of the Registrable Shares of such stockholder sold as contemplated herein.

(c) Each party entitled to indemnification under this Section 6 (the "Indemnified Party") shall give notice to the party required to provide indemnification (the "Indemnifying Party") promptly after such Indemnified Party has actual knowledge of any claim as to which indemnity may be sought, and shall permit the Indemnifying Party to assume the defense of any such claim or any litigation resulting therefrom; provided, that counsel for the Indemnifying Party, who shall conduct the defense of such claim or litigation, shall be approved by the Indemnified Party (whose approval shall not be unreasonably withheld); and, provided, further, that the failure of any Indemnified Party to give notice as provided herein shall not relieve the Indemnifying Party of its obligations under this Section 6. The Indemnified Party may participate in such defense at such party's expense; provided, however, that the Indemnifying Party shall pay such expense if representation of such Indemnified Party by the counsel retained by the Indemnifying Party would be inappropriate due to actual or potential differing interests between the Indemnified Party and any other party represented by such counsel in such proceeding; provided, however, that under no circumstances will the Indemnifying Party be required under this Section 6 to pay the expenses of more than one counsel for the Indemnified Parties. No Indemnifying Party, in the defense of any such claim or litigation shall, except with the consent of each Indemnified Party, consent to entry of any judgment or enter into any settlement which does not include as an unconditional term thereof the giving by the claimant or plaintiff to such Indemnified Party of a release from all liability in respect of such claim or litigation, and no Indemnified Party shall consent to entry of any judgment or settle such claim or litigation without the prior written consent of the Indemnifying Party.

(d) If the indemnification provided for in this Section 6 is unavailable or insufficient to hold harmless an Indemnified Party under this Section 6 in respect of any losses, claims, damages or liabilities (or actions in respect thereof) referred to herein, then each Indemnifying Party shall contribute to the amount paid or payable by such Indemnified Party as a result of such losses, claims, damages or liabilities (or actions in respect thereof) in the same proportion as the net proceeds from the offering (before deducting expenses) received by such Indemnifying Party bear to the total net proceeds from the offering (before deducting expenses) received by it exceeds the amount of any damages which such Indemnifying Party has otherwise been required to pay by reason of its indemnification obligations under this Section 6. No person guilty of fraudulent misrepresentation within the meaning of Section 11(a) of the Securities Act shall be entitled to contribution from any person who is not guilty of such fraudulent misrepresentation. The contribution obligations of each Indemnifying Party under this Section 6 are several and not joint.

7. Information By Holder. Each holder of Registrable Shares included in any

registration shall furnish to the Company such information regarding such holder and the distribution proposed by such holder as the Company may request in writing and as shall be required in connection with any registration, qualification or compliance referred to in Section 4.

8. "Stand-Off" Agreement. If required by the Company or the underwriter, Stockholders shall agree not to sell or otherwise transfer or dispose of any Registrable Shares or other securities of the Company held by such Stockholder for a specified period of time (not to exceed 180 days following the Company's initial public offering and 90 days for any subsequent public offering) following the effective date of a Registration Statement, provided that the officers and directors of the Company and all holders of 5% or more of the Company's Convertible Preferred Stock (calculated on an as-converted basis) and Common Stock enter into similar agreements. Such agreement shall be in writing in a form satisfactory to the Company and such underwriter. The Company may impose stop-transfer instructions with respect to the Registrable Shares or other securities subject to the foregoing restriction until the end of the stand-off period.

9. Rule 144 Requirements. After the earliest of (i) the closing of the sale of securities of the Company pursuant to a Registration Statement, (ii) the registration by the Company of a class of securities under Section 12 of the Exchange Act, or (iii) the completion by the Company of an offering of its securities (other than pursuant to an employee benefit plan) in accordance with the provisions of Regulation A under the Securities Act, the Company agrees to:

(a) make and keep public information available, as those terms are understood and defined in Rule 144 under the Securities Act;

(b) use its best efforts to file with the Commission in a timely manner all reports and other documents required of the Company under the Exchange Act (at any time after it has become subject to such reporting requirements); and

(c) furnish to any holder of Registrable Shares upon request a written statement by the Company as to its compliance with the information requirements of said Rule 144 (at any time after 90 days after the closing of the first sale of securities by the Company pursuant to a Registration Statement), and of the reporting requirements of the Exchange Act (at any time after it has become subject to such reporting requirements), a copy of the most recent annual or quarterly report of the Company, and such other reports and documents of the Company as such holder may reasonably request to avail itself of any similar rule or regulation of the Commission allowing it to sell any such securities without registration.

10. Transfers Of Certain Rights. The rights granted hereunder may be transferred by a Stockholder to any transferee who acquires at least 100,000 Registrable Shares; provided, however, that the Company is given written notice by the transferee prior to any proposed exercise of such rights stating the name and address of the transferee and identifying the securities with respect to which such rights are being or have been assigned. Any transferee to whom rights under this Agreement are transferred shall, as a condition to the effectiveness of such transfer as against the Company, deliver to the Company a written instrument by which such transferee agrees to be

bound by the obligations imposed upon the Stockholder under this Agreement to the same extent as if such transferee were a Stockholder hereunder.

11. Election of Directors.

(a) For so long as Sorenson Development, Incorporated, James LeVoy Sorenson, Gary Crocker, James Lee Sorenson and Joseph Sorenson (collectively, "Sorenson") continue to own, directly or through a controlled affiliate or affiliates under common control, in the aggregate at least 2,977,766 shares of Series C Preferred Stock (subject to adjustment for stock splits, stock dividends and the like), each of the parties hereto agrees to vote all of the Shares owned by such party (and attend, in person or by proxy, all meetings of stockholders called for the purpose of electing directors), and the Company agrees to take all actions (including, but not limited to the nomination of specified persons) to cause and maintain the election to the Board of Directors of the Company, to the extent permitted pursuant to the Charter, one (1) person designated by Sorenson (by action of the holders of a majority of the shares of Series C Preferred Stock owned by Sorenson directly or through a controlled affiliate or affiliate under common control) and who shall initially be Gary L. Crocker. In the absence of any designation from Sorenson as specified above, the director previously designated by Sorenson and then serving shall be reelected if still eligible to serve as provided herein.

(b) No party hereto shall vote to remove any member of the Board of Directors designated in accordance with Section 11(a) unless Sorenson (by action of the holders of a majority of the shares of Series C Preferred Stock owned by Sorenson directly or through a controlled affiliate or affiliate under common control) so votes, and, if Sorenson so votes, then all other parties hereto shall likewise so vote.

(c) Any vacancy on the Board of Directors created by the resignation, removal, incapacity or death of the director designated by Sorenson pursuant to this Section 11 shall be filled by another person designated in the same manner.

(d) Each of the parties hereto further covenants and agrees to vote, to the extent possible, all Shares owned by such party so that the Company's Board of Directors shall consist of no more than nine (9) members.

12. Covenants of the Company.

(a) Financial Statements. For so long as there are shares of Convertible Preferred Stock outstanding, the Company shall furnish to Sorenson and to each Investor holding (i) at least ten percent (10%) of the then outstanding shares of Convertible Preferred Stock, or Common Stock issuable upon conversion of the Convertible Preferred Stock, (ii) at least 1,111,111 shares of Series E Preferred Stock (subject to adjustment for stock splits, stock dividends and the like), (iii) at least 1,177,599 shares of Series F Preferred Stock (subject to adjustment for stock splits, stock dividends and the like), or (iv) at least 1,100,000 shares of Series G Preferred Stock (subject to adjustment for stock splits, stock dividends, and the like) the following reports: (A) within one

hundred and twenty (120) days after the end of each fiscal year, an audited consolidated balance sheet of the Company as at the end of such year, together with audited consolidated statements of income, stockholders' equity and cash flows of the

Company for such year, certified by an independent public accountant prepared in accordance with generally accepted accounting principles and practices consistently applied; (B) within thirty (30) days after the end of each month, an unaudited consolidated balance sheet of the Company as at the end of such month and an unaudited consolidated statement of income and cash flows for the Company for such month and for the year to date prepared in accordance with generally accepted accounting principles consistently applied (except that such financial statements need not contain footnotes) and fairly reflecting the financial affairs of the Company subject to year-end adjustments; (C) within forty-five (45) days of the end of each fiscal quarter, unaudited quarterly financial statements, including current period and year-to-date figures and variances from budget; and (D) within forty-five (45) days after the end of each fiscal year, a operating plan for the following fiscal year.

(b) Inspection. The Company shall permit Sorenson or any of their authorized representatives to inspect the books of account of the Company during normal business hours and upon reasonable notice; provided that all such information provided to Sorenson and their representatives by the Company will be maintained as confidential by Sorenson and their representatives, employees, agents and advisors and will not be disclosed to third parties and will not be used in a manner that is adverse to the Company.

(c) Investment Company Act. The Company shall take all necessary steps, including with respect to the use of the proceeds, to ensure that the Company does not become an "Investment Company" within the meaning of the Investment Company Act of 1940, as amended.

(d) Expenses of Directors. The Company shall promptly reimburse in full each director of the Company who is not an employee of the Company for all of his or her reasonable out-of-pocket expenses incurred in attending each meeting of the Board or any committee thereof.

13. Preemptive Rights.

(a) Participation Offer. After the date hereof, except as provided in Section 13(c), the Company shall not issue or sell any: (a) shares of capital stock of the Company; (b) securities convertible into or carrying any rights to purchase capital stock of the Company; or (c) options, warrants or other rights to subscribe for, purchase or otherwise acquire any capital stock of the Company; unless the Company first submits a written offer (the "Participation Offer") to each of the holders of Convertible Preferred Stock to permit such holders to participate in the purchase of such securities on the same terms and conditions, including price, as proposed by the Company in connection with such an issuance or sale.

(b) Extent of Participation. The number of securities that may be purchased by any holder of Convertible Preferred Stock upon receipt of a Participation Offer shall be equal to the amount determined by multiplying the total number of securities the Company proposes to sell by the ratio of (a) the shares of Common Stock of the Company then owned by such holder or obtainable by such holder upon conversion of the Convertible Preferred Stock and exercise of warrants owned by such holder, to (b) all of the issued and outstanding shares of Common Stock of the Company determined on a fully-diluted basis, including shares of Common Stock issuable

upon conversion of any outstanding shares of Convertible Preferred Stock or other convertible securities or the exercise of outstanding warrants and options to purchase Convertible Preferred Stock or Common Stock. The Participation Offer shall remain open and irrevocable for a period of ten (10) business days. In the event that any holder of Convertible Preferred Stock does not fully participate in any such equity issuance or sale, the preemptive rights granted herein shall be limited for all subsequent equity issuances to the lowest aggregate participation percentage by such holder in any equity issuance or sale. In the event that any holder of Convertible Preferred Stock does not participate in any such equity issuance or sale, the preemptive rights granted herein shall terminate and be of no further force and effect.

(c) Excepted Issuances. Notwithstanding anything to the contrary contained in this Section 13, the Company may, from the date hereof, without having to submit a Participation Offer to the holders of Convertible Preferred Stock, issue securities pursuant to any of the Excepted Issuances described in the Charter, as amended and/or restated from time to time.

14. Specific Enforcement. Each party hereto expressly agrees that the Company may be irreparably damaged by any breach or threatened breach of this Agreement. Upon a breach or threatened breach of the terms, covenants and/or conditions of this Agreement by any Stockholder, the Company shall, in addition to all other remedies, be entitled to seek a temporary or permanent injunction and/or a decree for specific performance, in accordance with the provisions hereof.

15. Proxy. In furtherance of its obligations hereunder, each party hereby irrevocably grants to, constitutes and appoints the Board of Directors of the Company, acting through a majority thereof, with full powers of substitution, its true and lawful proxy and attorney-in-fact with respect to its Shares, with full power to vote its Shares at any meeting of the stockholders of the Company or written action in lieu thereof, with respect all matters referred to in Section 11 of this Agreement. EACH PARTY HERETO AGREES THAT THIS PROXY AND ALL OTHER POWER AND AUTHORITY INTENDED TO BE CONFERRED HEREBY IS COUPLED WITH AN INTEREST SUFFICIENT IN LAW TO SUPPORT AN IRREVOCABLE POWER AND SHALL NOT BE TERMINATED BY ANY ACT OF SUCH STOCKHOLDER, BY LACK OF APPROPRIATE POWER OR AUTHORITY OR BY THE OCCURRENCE OF ANY OTHER EVENT OR EVENTS.

16. Legend. Each certificate evidencing any of the Shares now or hereafter owned by any Stockholder shall bear a legend substantially as follows:

> THESE SECURITIES HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED, OR THE LAWS OF ANY STATE. THESE SECURITIES HAVE BEEN ACQUIRED FOR INVESTMENT AND NOT WITH A VIEW TO DISTRIBUTION OR RESALE, AND MAY NOT BE SOLD, DISPOSED OF OR OTHERWISE TRANSFERRED WITHOUT AN EFFECTIVE REGISTRATION STATEMENT FOR SUCH SHARES UNDER THE SECURITIES ACT OF 1933, AS AMENDED, OR AN OPINION OF COUNSEL FOR THE CORPORATION

THAT REGISTRATION IS NOT REQUIRED UNDER SUCH ACT. IN ADDITION, THE SHARES REPRESENTED BY THIS CERTIFICATE ARE

SUBJECT TO THE PROVISIONS OF A CERTAIN INVESTORS RIGHTS AGREEMENT, COPIES OF WHICH THE COMPANY WILL FURNISH TO THE HOLDER OF THIS CERTIFICATE UPON REQUEST AND WITHOUT CHARGE.

17. Notices. Any notice or other communication required or which may be given hereunder shall be in writing and shall be delivered personally, sent by facsimile transmission (with a copy by mail) or sent by certified, registered or express mail (including Federal Express or other established overnight delivery service), postage prepaid, as follows:

to the Company:	Merrimack Pharmaceuticals, Inc. One Kendall Square Suite B7201 Cambridge, Massachusetts 02139 Attention: Robert Mulroy, President Fax: (617) 491-1386
with a copy to:	Wilmer Cutler Pickering Hale and Dorr LLP 60 State Street Boston, MA 02109 Attention: David E. Redlick, Esq. Fax: (617) 526-5000

And if to an Investor, to its address set forth on its signature page hereto.

The parties may from time to time amend the above addresses and names by written notice given the other party.

18. Miscellaneous.

(a) Amendments and Waivers. Except as otherwise expressly set forth in this Agreement, any term of this Agreement (other than Sections 11, 12 and 13) may be amended and the observance of any term of this Agreement may be waived (either generally or in a particular instance and either retroactively or prospectively), with the written consent of the Company and the holders of a majority of the Registrable Shares; provided, however, that it may be amended with the consent of the holders of less than all Registrable Shares (calculated on an as-converted, as-exercised basis) only in a manner which equally affects the contractual rights of all holders of Registrable Shares. Sections 11 and 12 hereof may be amended and any term thereof may be waived (either generally or in a particular instance and either retroactively or prospectively), with the written consent of the Company and the holders of a majority of the then outstanding shares of Series B Preferred Stock, Series C Preferred Stock, Series D Preferred Stock, Series E Preferred Stock, Series F Preferred Stock and Series G Preferred Stock, each voting separately as a class; provided that Sections 11 and 12(b) hereof may be terminated with the written consent of the Company and the holders of a majority of the then outstanding shares of Series C Preferred Stock. Section 13 hereof may be amended and any term thereof may be waived (either generally or in a particular instance and either retroactively or prospectively), with the written consent of the Company and the holders of at least fifty-one percent (51%) of the then

outstanding shares of Series B Preferred Stock, Series C Preferred Stock, Series D Preferred Stock, Series E Preferred Stock, Series F Preferred Stock and Series G Preferred Stock, each voting separately as a class. Any amendment or waiver effected in accordance with this Section 18(a) shall be binding upon each holder of any Shares or Registrable Shares, each future holder of all such securities and the Company. No waivers of or exceptions to any term, condition or provision of this Agreement, in any one or more instances, shall be deemed to be, or construed as, a further or continuing waiver of any such term, condition or provision.

(b) Counterparts. This Agreement may be executed in several counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

(c) Headings. The headings of the sections, subsections, and paragraphs of this Agreement have been added for convenience only and shall not be deemed to be a part of this Agreement.

(d) Severability. The invalidity or unenforceability of any provision of this Agreement shall not affect the validity or enforceability of any other provision.

(e) Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Delaware without regard to its principles of conflicts of law.

(f) Entire Agreement. This Agreement, the Series B Purchase Agreement, the Series C Purchase Agreement, the Series D Purchase Agreement, the Series E Purchase Agreement, the Series F Purchase Agreement, the Series G Purchase Agreement and the exhibits, schedules and other agreements referred to herein or therein, embody the entire agreement and the understanding between the parties hereto with respect to the subject matter hereof and supersede all prior agreements and understandings relating to such subject matter, including, without limitation, the Prior Agreement. With the prior written consent of the Company, any holder of Convertible Preferred Stock may become a party to this Agreement as an “Investor” hereunder by executing a joinder agreement in a form acceptable to the Company.

(g) Successors. This Agreement shall be binding upon and inure to the benefit of the Company and its successors, including, for the avoidance of doubt, any corporation that succeeds to the obligations of the Company as a result of a reincorporation of the Company to a different jurisdiction, and the

parties hereto agree that any such successor shall be deemed to be the "Company" hereunder.

(h) Termination. All of the Company's obligations to register Registrable Shares under Sections 2 and 3 shall terminate upon the earliest of (a) five years after the closing of the Company's initial public offering, (b) the date on which no Stockholder holds any Registrable Shares or (c) a Company Sale. Sections 11, 12, 13 and 15 shall terminate upon the earlier of the closing of the Company's initial public offering or the closing of a Company Sale. For purposes hereof, a "Company Sale" means: (a) a merger or consolidation in which the Company or a subsidiary of the Company is a constituent party and the Company issues shares of its capital stock pursuant to such merger or consolidation, except in the case of any such merger or consolidation involving the Company or a subsidiary of the Company in which the shares of

capital stock of the Company outstanding immediately prior to such merger or consolidation continue to represent, or are converted into or exchanged for shares of capital stock which represent, immediately following such merger or consolidation, more than 50% by voting power of the capital stock of (i) the surviving or resulting corporation or (ii) if the surviving or resulting corporation is a wholly owned subsidiary of another corporation immediately following such merger or consolidation, the parent corporation of such surviving or resulting corporation; (b) the sale, lease, transfer, exclusive license or other disposition, in a single transaction or series of related transactions, by the Company or a subsidiary of the Company of all or substantially all the assets of the Company and any subsidiaries of the Company taken as a whole (except where such sale, lease, transfer, exclusive license or other disposition is to a wholly owned subsidiary of the Company); or (c) the sale or transfer, in a single transaction or series of related transactions, by the stockholders of the Company of more than 50% by voting power of the then-outstanding capital stock of the Company to any person or entity or group of affiliated persons or entities.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date and year first above written.

COMPANY:

MERRIMACK PHARMACEUTICALS, INC.

By: /s/ Robert J. Mulroy
Robert J. Mulroy
President and Chief Executive Officer

THESE SECURITIES HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933 AS AMENDED, OR ANY STATE SECURITIES LAWS. THEY MAY NOT BE SOLD, OFFERED FOR SALE, PLEDGED, OR HYPOTHECATED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT RELATED THERETO OR AN OPINION OF COUNSEL (WHICH MAY BE COMPANY COUNSEL) REASONABLY SATISFACTORY TO THE COMPANY THAT SUCH REGISTRATION IS NOT REQUIRED UNDER THE SECURITIES ACT OF 1933 ACT AS AMENDED, OR ANY APPLICABLE STATE SECURITIES LAWS.

WARRANT AGREEMENT

To Purchase Shares of the Series D Preferred Stock of

Merrimack Pharmaceuticals, Inc.

Dated as of April 6, 2005 (the **"Effective Date")**

WHEREAS, Merrimack Pharmaceuticals, Inc., a Massachusetts corporation (the "**Company**"), has entered into a Senior Loan and Security Agreement of even date herewith (the **"Loan Agreement**") with Hercules Technology Growth Capital, Inc., a Maryland corporation (the **"Warrantholder**");

WHEREAS, the Company desires to grant to Warrantholder, in consideration for, among other things, the financial accommodations provided for in the Loan Agreement, the right to purchase shares of its Series D Preferred Stock pursuant to this Warrant Agreement (the "Agreement");

NOW, THEREFORE, in consideration of the Warrantholder executing and delivering the Loan Agreement and providing the financial accommodations contemplated therein, and in consideration of the mutual covenants and agreements contained herein, the Company and Warrantholder agree as follows:

1. GRANT OF THE RIGHT TO PURCHASE PREFERRED STOCK.

For value received, the Company hereby grants to the Warrantholder, and the Warrantholder is entitled, upon the terms and subject to the conditions hereinafter set forth, to subscribe for and purchase, from the Company, 302,143 fully paid and non-assessable shares of the Preferred Stock (as defined below) at a purchase price of $3.50 per share (the **"Exercise Price**"). The number and Exercise Price of such shares are subject to adjustment as provided in Section 8. As used herein, the following terms shall have the following meanings:

"**Act**" means the Securities Exchange Act of 1933, as amended.

"**Charter**" means the Company's Articles of Organization, as may be amended from time to time.

"**Common Stock**" means the Company's common stock;

"**Initial Public Offering**" means the initial underwritten public offering of the Company's Common Stock pursuant to a registration statement under the Act, which public offering has been declared effective by the Securities and Exchange Commission ("**SEC**");

"**Merger Event**" means a merger or consolidation involving the Company in which the Company is not the surviving entity, or in which the outstanding shares of the Company's capital stock are otherwise converted into or exchanged for shares of capital stock of another entity.

"**Preferred Stock**" means the Series D Preferred Stock of the Company and any other stock into or for which the Series D Preferred Stock may be converted or exchanged, and upon and after the occurrence of an event which results in the automatic or voluntary conversion, redemption or retirement of all (but not less than all) of the outstanding shares of such Preferred Stock, including, without limitation, the consummation of an Initial Public Offering of the Common Stock in which such a conversion occurs, then from and after the date upon which such outstanding shares are so converted, redeemed or retired, "Preferred Stock" shall mean such Common Stock; and

"**Purchase Price**" means, with respect to any exercise of this Agreement, an amount equal to the Exercise Price as of the relevant time multiplied by the number of shares of Preferred Stock requested to be exercised under this Agreement pursuant to such exercise.

2. TERM OF THE AGREEMENT.

Except as otherwise provided for herein, the term of this Agreement and the right to purchase Preferred Stock as granted herein (the "Warrant) shall commence on the Effective Date and shall be exercisable for a period ending upon the latest to occur of (i) five (5) years from the Effective Date; or (ii) two (2) years after the Initial Public Offering.

3. EXERCISE OF THE PURCHASE RIGHTS.

(a) Exercise. The purchase rights set forth in this Agreement are exercisable by the Warrantholder, in whole or in part, at any time, or from time to time, prior to the expiration of the term set forth in Section 2, by tendering to the Company at its principal office a notice of exercise in the form attached hereto as **Exhibit I** (the "**Notice of Exercise**"), duly completed and executed. Promptly upon receipt of the Notice of Exercise and the payment of the Purchase Price in accordance with the terms set forth below, and in no event later than three (3) business days thereafter, the Company shall issue to the Warrantholder a certificate for the number of shares of Preferred Stock purchased and shall execute the acknowledgment of exercise in the form attached hereto as **Exhibit II** (the "**Acknowledgment of Exercise**") indicating the number of shares which remain subject to future purchases, if any.

The Purchase Price may be paid at the Warrantholder's election either (i) by cash or check, or (ii) by surrender of all or a portion of the Warrant for shares of Preferred Stock to be exercised under this Agreement and, if applicable, an amended Agreement representing the remaining number of shares

purchasable hereunder, as determined below ("**Net Issuance**"). If the Warrantholder elects the Net Issuance method, the Company will issue Preferred Stock in accordance with the following formula:

$$X = \frac{Y(A-B)}{A}$$

Where: X = the number of shares of Preferred Stock to be issued to the Warrantholder.

Y = the number of shares of Preferred Stock requested to be exercised under this Agreement.

A = the fair market value of one (1) share of Preferred Stock at the time of issuance of such shares of Preferred Stock.

B = the Exercise Price.

For purposes of the above calculation, current fair market value of Preferred Stock shall mean with respect to each share of Preferred Stock:

(i) if the exercise is in connection with an Initial Public Offering, and if the Company's Registration Statement relating to such Initial Public Offering has been declared effective by the SEC, then the fair market value per share shall be the product of (x) the initial "Price to Public" of the Common Stock specified in the final prospectus with respect to the offering and (y) the number of shares of Common Stock into which each share of Preferred Stock is convertible at the time of such exercise;

(ii) if the exercise is after, and not in connection with, an Initial Public Offering, and:

(1) if the Common Stock is traded on a securities exchange, the fair market value shall be deemed to be the product of (x) the average of the closing prices over a five (5) day period ending three days before the day the current fair market value of the securities is being determined and (y) the number of shares of Common Stock into which each share of Preferred Stock is convertible at the time of such exercise; or

(2) if the Common Stock is actively traded over-the-counter, the fair market value shall be deemed to be the product of (x) the average of the closing bid and asked prices quoted on the NASDAQ system (or similar system) over the ten (10) day period ending three days before the day the current fair market value of the securities is being determined and (y) the number of shares of Common Stock into which each share of Preferred Stock is convertible at the time of such exercise;

(iii) if at any time the Common Stock is not listed on any securities exchange or quoted in the NASDAQ National Market or the over-the-counter market, the current fair market value of Preferred Stock shall be the product of (x) the highest price per share which the Company could obtain from a willing buyer (not a current employee or director) for shares of Common Stock sold by the Company, from authorized but unissued shares, as most recently determined in good faith by its Board of Directors and (y) the number of shares of Common Stock into which each share of Preferred Stock is convertible at the time of such exercise, unless the Company shall become subject to a Merger Event pursuant to which the Company is not the surviving party, in which case the fair market value of Preferred Stock shall be deemed to be the

per share value received by the holders of the Company's Preferred Stock on a common equivalent basis pursuant to such Merger Event.

Upon partial exercise by either cash or Net Issuance, the Company shall promptly issue an amended Agreement representing the remaining number of shares purchasable hereunder. All other terms and conditions of such amended Agreement shall be identical to those contained herein, including, but not limited to the Effective Date hereof.

(b) Exercise Prior to Expiration. To the extent this Agreement is not previously exercised as to all Preferred Stock subject hereto, and if the fair market value of one share of the Preferred Stock is greater than the Exercise Price then in effect, this Agreement shall be deemed automatically exercised pursuant to Section 3(a) (even if not surrendered) immediately before its expiration. For purposes of such automatic exercise, the fair market value of one share of the Preferred Stock upon such expiration shall be determined pursuant to Section 3(a). To the extent this Agreement or any portion thereof is deemed automatically exercised pursuant to this Section 3(b), the Company agrees to promptly notify the Warrantholder of the number of shares of Preferred Stock, if any, the Warrantholder is to receive by reason of such automatic exercise.

4. RESERVATION OF SHARES.

During the term of this Agreement, the Company will at all times have authorized and reserved a sufficient number of shares of its Preferred Stock to provide for the exercise of the rights to purchase Preferred Stock as provided for herein, and shall have authorized and reserved a sufficient number of shares of its Common Stock to provide for the conversion of the Preferred Shares available hereunder.

5. NO FRACTIONAL SHARES OR SCRIP.

No fractional shares or scrip representing fractional shares shall be issued upon the exercise of this Agreement, but in lieu of such fractional shares the Company shall make a cash payment therefor upon the basis of the Exercise Price then in effect.

6. NO RIGHTS AS SHAREHOLDER.

This Agreement does not entitle the Warrantholder to any voting rights or other rights as a shareholder of the Company prior to the exercise of this Agreement.

7. WARRANTHOLDER REGISTRY.

The Company shall maintain a registry showing the name and address of the registered holder of this Agreement. Warrantholder's initial address, for purposes of such registry, is set forth below Warrantholder's signature on this Agreement. Warrantholder may change such address by giving written notice of such changed address to the Company.

8. ADJUSTMENT RIGHTS.

The Exercise Price and the number of shares of Preferred Stock purchasable hereunder are subject to adjustment, as follows:

(a) Merger Event. If at any time there shall be Merger Event, then, as a part of such Merger Event, lawful provision shall be made so that the Warrantholder shall thereafter be entitled to receive, upon exercise of this Agreement, the number of shares of preferred stock or other securities or property of the successor corporation resulting from such Merger Event that would have been issuable if Warrantholder had exercised this Agreement immediately prior to the Merger Event. In any such case, appropriate adjustment (as determined in good faith by the Company's Board of Directors) shall be made in the application of the provisions of this Agreement with respect to the rights and interests of the Warrantholder after the Merger Event to the end that the provisions of this Agreement (including adjustments of the Exercise Price and number of shares of Preferred Stock purchasable) shall be applicable in their entirety, and to the greatest extent possible. Without limiting the foregoing, in connection with any Merger Event, upon the closing thereof, the successor or surviving entity shall assume the obligations of this Agreement.

(b) Reclassification of Shares. Except as set forth in Section 8(a), if the Company at any time shall, by combination, reclassification, exchange or subdivision of securities or otherwise, change any of the securities as to which purchase rights under this Agreement exist into the same or a different number of securities of any other class or classes, this Agreement shall thereafter represent the right to acquire such number and kind of securities as would have been issuable as the result of such change with respect to the securities which were subject to the purchase rights under this Agreement immediately prior to such combination, reclassification, exchange, subdivision or other change.

(c) Subdivision or Combination of Shares. If the Company at any time shall combine or subdivide its Preferred Stock, (i) in the case of a subdivision, the Exercise Price shall be proportionately decreased, and the number of shares of Preferred Stock issuable upon exercise of this Agreement shall be proportionately increased, or (ii) in the case of a combination, the Exercise Price shall be proportionately increased, and the number of shares of Preferred Stock issuable upon the exercise of this Agreement shall be proportionately decreased.

(d) Stock Dividends. If the Company at any time while this Warrant is outstanding and unexpired shall:

(i) pay a dividend with respect to the Preferred Stock payable in Preferred Stock, then the Exercise Price shall be adjusted, from and after the date of determination of shareholders entitled to receive such dividend or distribution, to that price determined by multiplying the Exercise Price in effect immediately prior to such date of determination by a fraction (A) the numerator of which shall be the total number of shares of Preferred Stock outstanding immediately prior to such dividend or distribution, and (B) the denominator of which shall be the total number of shares of Preferred Stock outstanding immediately after such dividend or distribution; or

(ii) make any other distribution with respect to Preferred Stock (or stock into which the Preferred Stock is convertible), except any distribution specifically provided for in any other clause of this Section 8, then, in each such case, provision shall be made by the Company such that the Warrantholder shall receive upon exercise or conversion of this Warrant a proportionate share of any such distribution as though it were the holder of the Preferred Stock

(or other stock for which the Preferred Stock is convertible) as of the record date fixed for the determination of the shareholders of the Company entitled to receive such distribution.

(e) Antidilution Rights. Additional antidilution rights applicable to the Preferred Stock purchasable hereunder are as set forth in the Company's Charter and shall be applicable with respect to the Preferred Stock issuable hereunder. The Company shall promptly provide the Warrantholder with any restatement, amendment, modification or waiver of the Charter that materially affects the rights of the Preferred Stock; **provided,** that no such amendment, modification or waiver shall impair or reduce the antidilution rights applicable to the Preferred Stock as of the date hereof unless such amendment, modification or waiver affects the rights of Warrantholder with respect to the Preferred Stock in the same manner as it affects all other holders of Preferred Stock. For the avoidance of doubt, there shall be no duplicate anti-dilution adjustment pursuant to this subsection (f), the forgoing subsection (d) and the Company's Charter.

(f) Notice of Adjustments. Whenever an adjustment to the Exercise Price or the number of shares of Preferred Stock issuable upon exercise of this Agreement is made pursuant to this Section 8, the Company shall send to the Warrantholder a notice setting forth, in reasonable detail, (i) the event requiring the adjustment, (ii) the amount of such adjustment, (iii) the method by which such adjustment was calculated, (iv) the adjusted Exercise Price (if the Exercise Price has been adjusted), and (v) the number of shares subject to purchase hereunder after giving effect to such adjustment, and shall cause such notice to be mailed (by first class mail, postage prepaid, or by reputable overnight courier with all charges prepaid) within thirty (30) days of such adjustment addressed to the Warrantholder at the address for Warrantholder set forth in the registry referred to in Section 7.

9. REPRESENTATIONS, WARRANTIES AND COVENANTS OF THE COMPANY.

(a) Reservation of Preferred Stock. The Preferred Stock issuable upon exercise of the Warrantholder's rights has been duly and validly reserved and, when issued in accordance with the provisions of this Agreement, will be validly issued, fully paid and non-assessable, and will be free of any taxes, liens, charges or encumbrances of any nature whatsoever; **provided,** that the Preferred Stock issuable pursuant to this Agreement may be subject to restrictions on transfer under state and/or federal securities laws and applicable agreements to which the Company or its security holders are parties. The Company has made available to the Warrantholder true, correct and complete copies of its Charter and current bylaws. The issuance of certificates for shares

of Preferred Stock upon exercise of this Agreement shall be made without charge to the Warrantholder for any issuance tax in respect thereof, or other cost incurred by the Company in connection with such exercise and the related issuance of shares of Preferred Stock; **provided,** that the Company shall not be required to pay any tax which may be payable in respect of any transfer and the issuance and delivery of any certificate in a name other than that of the Warrantholder.

(b) Due Authority. The execution and delivery by the Company of this Agreement and the performance of all obligations of the Company hereunder, including the issuance to Warrantholder of the right to acquire the shares of Preferred Stock and the Common Stock into which it may be converted, have been duly authorized by all necessary corporate action on the

part of the Company. This Agreement: (1) is not inconsistent with the Company's Charter or current bylaws; (2) does not contravene any law or governmental rule, regulation or order applicable to it; and (3) does not and will not contravene any provision of, or constitute a default under, any indenture, mortgage, contract or other instrument to which it is a party or by which it is bound. This Agreement constitutes a legal, valid and binding agreement of the Company, enforceable in accordance with its respective terms.

(c) Consents and Approvals. No consent or approval of, giving of notice to, registration with, or taking of any other action in respect of any state, federal or other governmental authority or agency is required with respect to the execution, delivery and performance by the Company of its obligations under this Agreement, except for the filing of notices pursuant to Regulation D under the Act and any filing required by applicable state securities law, which filings will be effective by the time required thereby.

(d) Issued Securities. All issued and outstanding shares of Common Stock, Preferred Stock or any other securities of the Company have been duly authorized and validly issued and are fully paid and nonassessable. All outstanding shares of Common Stock, Preferred Stock and any other securities were issued in full compliance with all federal and state securities laws. In addition, as of the date immediately preceding the date of this Agreement:

(i) The authorized capital of the Company consists of (A) 50,000,000 shares of Common Stock, of which 6,881,870 shares are issued and outstanding, (B) 86,000 shares of Series A Non-Convertible Redeemable Preferred Stock, of which 54,838 shares are issued and outstanding, (C) 6,000,000 shares of Series B Convertible Preferred Stock, of which 3,873,448 shares are issued and outstanding and are convertible into 5,978,461 shares of Common Stock, (D) 15,100,000 shares of Series C Convertible Preferred Stock, of which 15,077,604 shares are issued and outstanding and are convertible into 15,077,604 shares of Common Stock, and (E) 11,500,000 shares of Series D Convertible Preferred Stock, of which 5,720,925 shares are issued and outstanding and are convertible into 5,720,925 shares of Common Stock,.

(ii) The Company has reserved 8,000,000 shares of Common Stock for issuance under its Stock Option Plan(s), under which 4,811,104 options are outstanding. There are no other options, warrants, conversion privileges or other rights presently outstanding to purchase or otherwise acquire any authorized but unissued shares of the Company's capital stock or other securities of the Company.

(iii) In accordance with the Company's Charter, no shareholder of the Company has preemptive right to purchase new issuances of the Company's capital stock.

(e) Other Commitments to Register Securities. Except as set forth in this Agreement and that certain Amended and Restated Investor Rights Agreement by and between the Company and the parties named therein dated as of January 25, 2005, the Company is not, pursuant to the terms of any other agreement currently in existence, under any obligation to register under the Act any of its presently outstanding securities or any of its securities which may hereafter be issued.

(f) Exempt Transaction. Subject to the accuracy of the Warrantholder's representations in Section 10, the issuance of the Preferred Stock upon exercise of this Agreement, and the issuance of the Common Stock upon conversion of the Preferred Stock, will each constitute a transaction exempt from (i) the registration requirements of Section 5 of the Act, in reliance upon Section 4(2) thereof, and (ii) the qualification requirements of the applicable state securities laws.

(g) Compliance with Rule 144. If the Warrantholder proposes to sell Preferred Stock issuable upon the exercise of this Agreement, or the Common Stock into which it is convertible, in compliance with Rule 144 promulgated by the SEC, then, upon Warrantholder's written request to the Company, the Company shall furnish to the Warrantholder, within ten days after receipt of such request, a written statement confirming the Company's compliance with the filing requirements of the SEC as set forth in such Rule, as such Rule may be amended from time to time.

10. REPRESENTATIONS AND COVENANTS OF THE WARRANTHOLDER.

This Agreement has been entered into by the Company in reliance upon the following representations and covenants of the Warrantholder:

(a) Investment Purpose. The right to acquire Preferred Stock or the Preferred Stock issuable upon exercise of the Warrantholder's rights contained herein will be acquired for investment and not with a view to the sale or distribution of any part thereof, and the Warrantholder has no present intention of selling or engaging in any public distribution of the same except pursuant to a registration or exemption.

(b) Private Issue. The Warrantholder understands (i) that the Preferred Stock issuable upon exercise of this Agreement is not registered under the Act or qualified under applicable state securities laws on the ground that the issuance contemplated by this Agreement will be exempt from the registration and qualifications requirements thereof, and (ii) that the Company's reliance on such exemption is predicated on the representations set forth in this Section 10.

(c) Disposition of Warrantholder's Rights. In no event will the Warrantholder make a disposition of any of its rights to acquire Preferred Stock or Preferred Stock issuable upon exercise of such rights unless and until (i) it shall have notified the Company of the proposed disposition, and (ii) if requested by the Company, it shall have furnished the Company with an opinion of counsel (which counsel may either be inside or outside counsel to the

Warrantholder) satisfactory to the Company and its counsel to the effect that (A) appropriate action necessary for compliance with the Act has been taken, or (B) an exemption from the registration requirements of the Act is available. Notwithstanding the foregoing, the restrictions imposed upon the transferability of any of its rights to acquire Preferred Stock or Preferred Stock issuable on the exercise of such rights do not apply to transfers from the beneficial owner of any of the aforementioned securities to its nominee or from such nominee to its beneficial owner, and shall terminate as to any particular share of Preferred Stock when (1) such security shall have been effectively registered under the Act and sold by the holder thereof in accordance with such registration or (2) such security shall have been sold without registration in compliance with

Rule 144 under the Act, or (3) a letter shall have been issued to the Warrantholder at its request by the staff of the SEC or a ruling shall have been issued to the Warrantholder at its request by the SEC stating that no action shall be recommended by such staff or taken by the SEC, as the case may be, if such security is transferred without registration under the Act in accordance with the conditions set forth in such letter or ruling and such letter or ruling specifies that no subsequent restrictions on transfer are required. Whenever the restrictions imposed hereunder shall terminate, as hereinabove provided, the Warrantholder or holder of a share of Preferred Stock then outstanding as to which such restrictions have terminated shall be entitled to receive from the Company, without expense to such holder, one or more new certificates for this Agreement or for such shares of Preferred Stock not bearing any restrictive legend.

(d) Financial Risk. The Warrantholder has such knowledge and experience in financial and business matters as to be capable of evaluating the merits and risks of its investment, and has the ability to bear the economic risks of its investment.

(e) Risk of No Registration. The Warrantholder understands that if the Company does not register with the SEC pursuant to Section 12 of the Securities Exchange Act of 1934, as amended (the "**1934 Act**"), or file reports pursuant to Section 15(d) of the 1934 Act, or if a registration statement covering the securities under the Act is not in effect when it desires to sell the rights to purchase Preferred Stock pursuant to this Agreement or (ii) the Preferred Stock issuable upon exercise of the right to purchase, it may be required to hold such securities for an indefinite period. The Warrantholder also understands that any sale of (A) its rights hereunder to purchase Preferred Stock or (B) Preferred Stock issued or issuable hereunder which might be made by it in reliance upon Rule 144 under the Act may be made only in accordance with the terms and conditions of that Rule.

(f) Accredited Investor. Warrantholder is an "accredited investor" within the meaning of the Securities and Exchange Rule 501 of Regulation D, as presently in effect.

(g) Diligence. Warrantholder has had an opportunity to discuss the Company's business, management and financial affairs with its management and an opportunity to review the Company's facilities.

11. TRANSFERS.

Subject to the terms and conditions contained in Section 10, this Agreement and all rights hereunder are transferable in whole or in part by the Warrantholder and any successor transferee, **provided,** that, prior to an Initial Public Offering, in no event shall the number of transfers of the rights and interests in this Agreement exceed three (3) transfers. The transfer shall be recorded on the books of the Company upon receipt by the Company of a notice of transfer in the form attached hereto as Exhibit III (the "**Transfer Notice**"), at its principal offices and the payment to the Company of all transfer taxes and other governmental charges imposed on such transfer.

12. MISCELLANEOUS.

(a) Effective Date. The provisions of this Agreement shall be construed and shall be given effect in all respects as if it had been executed and delivered by the Company on the date hereof. This Agreement shall be binding upon any successors or assigns of the Company.

(b) Remedies. In the event of any default hereunder, the non-defaulting party may proceed to protect and enforce its rights either by suit in equity and/or by action at law, including but not limited to an action for damages as a result of any such default, and/or an action for specific performance for any default where Warrantholder will not have an adequate remedy at law and where damages will not be readily ascertainable.

(c) No Impairment of Rights. The Company will not, by amendment of its Charter or through any other means, avoid or seek to avoid the observance or performance of any of the terms of this Agreement, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such actions as may be necessary or appropriate in order to protect the rights of the Warrantholder against impairment.

(d) Additional Documents. The Company, upon execution of this Agreement, shall provide the Warrantholder with certified resolutions with respect to the representations, warranties and covenants set forth in Sections 9(a) through 9(d), 9(f) and 9(g). The Company shall also supply such other documents as the Warrantholder may from time to time reasonably request.

(e) Attorney's Fees. In any litigation, arbitration or court proceeding between the Company and the Warrantholder relating hereto, the prevailing party shall be entitled to reasonable attorneys' fees and expenses and all costs of proceedings reasonably incurred in enforcing this Agreement. For the purposes of this Section 12(e), attorneys' fees shall include without limitation fees reasonably incurred in connection with the following: (i) contempt proceedings; (ii) discovery; (iii) any motion, proceeding or other activity of any kind in connection with an insolvency proceeding; (iv) garnishment, levy, and debtor and third party examinations; and (v) post-judgment motions and proceedings of any kind, including without limitation any activity taken to collect or enforce any judgment.

(f) Severability. In the event any one or more of the provisions of this Agreement shall for any reason be held invalid, illegal or unenforceable, the remaining provisions of this Agreement shall be unimpaired, and the invalid, illegal or unenforceable provision shall be replaced by a mutually acceptable valid, legal and enforceable provision, which comes closest to the intention of the parties underlying the invalid, illegal or unenforceable provision.

(g) Notices. Except as otherwise provided herein, any notice, demand, request, consent, approval, declaration, service of process or other communication that is required, contemplated, or permitted under this Agreement or with respect to the subject matter hereof shall be in writing, and shall be deemed to have been validly served, given, delivered, and received upon the earlier of: (i) the first business day after transmission by facsimile or hand delivery or deposit with an overnight express service or overnight mail delivery service; or (ii) the third calendar day after deposit in the United States mails, with proper first class postage prepaid (**provided**, that any Advance Request shall not be deemed received until Lender's actual receipt thereof), and shall be addressed to the party to be notified as follows:

If to Warrantholder:

HERCULES TECHNOLOGY GROWTH CAPITAL, INC.
Legal Department
Attention: Chief Legal Officer
525 University Avenue
Suite 700
Palo Alto, CA 9430
Facsimile: 650-473-9194
Telephone: 650-289-3060

With a copy to:

HERCULES TECHNOLOGY GROWTH CAPITAL, INC.
Attention: Parag Shah
100 Federal Street, 28th Floor
Boston, MA 02110
Facsimile: 617-330-9131
Telephone: 617-330-9100

If to the Company:

Merrimack Pharmaceuticals, Inc.
Attention: James Scibetta, Chief Financial Officer
101 Binney Street
Cambridge, MA 02142
Facsimile: 617-491-1386
Telephone: 617-441-1000

With a copy to:

GOODWIN PROCTER LLP
Attention: Mark D. Smith
53 State Street
Boston, MA 02109
Facsimile: 617-523-1231
Telephone: 617-570-1750

or to such other address as each party may designate for itself by like notice. A notice delivered to the Company or Warrantholder shall be valid despite the failure to deliver a copy of such notice to any other person.

(h) Entire Agreement; Amendments. This Agreement constitute the entire agreement and understanding of the parties hereto in respect of the subject matter hereof, and supersede and replace in their entirety any prior proposals, term sheets, letters, negotiations or other documents or agreements, whether written or oral, with respect to the subject matter hereof (including Lender's proposal letter dated February 16, 2005. None of the terms of this Agreement may be amended except by an instrument executed by each of the parties hereto.

(i) Headings. The various headings in this Agreement are inserted for convenience only and shall not affect the meaning or interpretation of this Agreement or any provisions hereof.

(j) Advice of Counsel. Each of the parties represents to each other party hereto that it has discussed (or had an opportunity to discuss) with its counsel this Agreement and, specifically, the provisions of Sections 12(n), 12(o) and 12(p).

(k) No Strict Construction. The parties hereto have participated jointly in the negotiation and drafting of this Agreement. In the event an ambiguity or question of intent or interpretation arises, this Agreement shall be construed as if drafted jointly by the parties hereto and no presumption or burden of proof shall arise favoring or disfavoring any party by virtue of the authorship of any provisions of this Agreement.

(l) No Waiver. No omission or delay by Warrantholder at any time to enforce any right or remedy reserved to it, or to require performance of any of the terms, covenants or provisions hereof by the Company at any time designated, shall be a waiver of any such right or remedy to which Warrantholder is entitled, nor shall it in any way affect the right of Warrantholder to enforce such provisions thereafter.

(m) Survival. All agreements, representations and warranties contained in this Agreement or in any document delivered pursuant hereto shall be for the benefit of Warrantholder and shall survive the execution and delivery of this Agreement and the expiration or other termination of this Agreement.

(n) Governing Law. This Agreement shall be governed by, and construed and enforced in accordance with, the laws of the Commonwealth of Massachusetts, excluding conflict of laws principles that would cause the application of laws of any other jurisdiction.

(o) Consent to Jurisdiction and Venue. All judicial proceedings arising in or under or related to this Agreement may be brought in any state or federal court of competent jurisdiction located in the State of California. By execution and delivery of this Agreement, each party hereto generally and unconditionally: (a) consents to personal jurisdiction in Santa Clara County, California; (b) waives any objection as to jurisdiction or venue in Santa Clara County, California; (c) agrees not to assert any defense based on lack of jurisdiction or venue in the aforesaid courts; and (d) irrevocably agrees to be bound by any judgment rendered thereby in connection with this Agreement. Service of process on any party hereto in any action arising out of or relating to this Agreement shall be effective if given in accordance with the requirements for notice set forth in Section 12(g), and shall be deemed effective and received as set forth in Section 12(g). Nothing herein shall affect the right to serve process in any other manner permitted by law or shall limit the right of either party to bring proceedings in the courts of any other jurisdiction.

(p) Mutual Waiver of Jury Trial. Because disputes arising in connection with complex financial transactions are most quickly and economically resolved by an experienced and expert person and the parties wish applicable state and federal laws to apply (rather than arbitration rules), the parties desire that their disputes be resolved by a judge applying such

applicable laws. EACH OF THE COMPANY AND WARRANTHOLDER SPECIFICALLY WAIVES ANY RIGHT IT MAY HAVE TO TRIAL BY JURY OF ANY CAUSE OF ACTION, CLAIM, CROSS-CLAM, COUNTERCLAIM, THIRD PARTY CLAIM OR ANY OTHER CLAIM (COLLECTIVELY, "CLAIMS") ASSERTED BY THE COMPANY AGAINST WARRANTHOLDER OR ITS ASSIGNEE OR BY WARRANTHOLDER OR ITS ASSIGNEE AGAINST THE COMPANY. This waiver extends to all such Claims, including Claims that involve Persons other than Borrower and Lender; Claims that arise out of or are in any way connected to the relationship between the Company and Warrantholder; and any Claims for damages, breach of contract, specific performance, or any equitable or legal relief of any kind, arising out of this Agreement. If this jury waiver is for any reason unenforceable, all disputes shall be resolved by binding arbitration conducted under the commercial arbitration rules of the American Arbitration Association in Palo Alto, California.

(q) Specific Performance. Warrantholder and Company agree that either may be irreparably damaged by any breach or threatened breach of this Agreement. Upon a breach or threatened breach of the terms, covenants and/or conditions of this Agreement by Warrantholder or Company, the other party shall, in addition to all other remedies, be entitled to seek a temporary or permanent injunction and/or a decree for specific performance, in accordance with the provisions hereof. Warrantholder and Company each waives the claim or defense that it has an adequate remedy at law, and such person shall not offer in any such action or proceeding the claim or defense that such remedy at law exists.

(r) Counterparts. This Agreement and any amendments, waivers, consents or supplements hereto may be executed in any number of counterparts, and by different parties hereto in separate counterparts, each of which when so delivered shall be deemed an original, but all of which counterparts shall constitute but one and the same instrument.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by its officers thereunto duly authorized as of the Effective Date.

COMPANY: MERRIMACK PHARMACEUTICALS, INC.

By: /s/ Robert J. Mulroy
Robert J. Mulroy
Title: President & CEO

Attn: James Scibetta, Chief Financial Officer
101 Binney Street
Cambridge, MA 02142

WARRANTHOLDER: HERCULES TECHNOLOGY GROWTH CAPITAL, INC.

By: /s/ Scott Harvey

Title: Chief Legal Officer

Hercules Technology Growth Capital, Inc.
Attn: Parag Shah
100 Federal Street, 28th Floor
Boston, MA 02110
Facsimile: 617-330-9131

Telephone: 617-330-9100

cc: Hercules Technology Growth Capital, Inc.
Attn: Chief Legal Officer
525 University Avenue
Suite 700
Palo Alto, CA 94301
Facsimile: 650-473-9194
Telephone: 650-289-3060

EXHIBIT I

NOTICE OF EXERCISE

To: Merrimack Pharmaceuticals, Inc.

(1) The undersigned Warrantholder hereby elects to purchase [ ] shares of the Series D Preferred Stock of Merrimack Pharmaceuticals, Inc., pursuant to the terms of the Agreement dated the [ ] day of April, 2005 (the "Agreement") between Merrimack Pharmaceuticals, Inc. and the Warrantholder, and [CASH PAYMENT: tenders herewith payment of the Purchase Price in full, together with all applicable transfer taxes, if any.] [NET ISSUANCE: elects pursuant to Section 3 (a) of the Agreement to effect a Net Issuance.]

(2) In exercising its rights to purchase the Series D Preferred Stock of Merrimack Pharmaceuticals, Inc., the undersigned hereby confirms and acknowledges the investment representations and warranties made in Section 10 of the Agreement.

(3) Please issue a certificate or certificates representing said shares of Series D Preferred Stock in the name of the undersigned or in such other name as is specified below.

_____
(Name)

_____
(Address)

WARRANTHOLDER: HERCULES TECHNOLOGY GROWTH CAPITAL, INC.

By: _____

Title: _____

Date: _____

EXHIBIT II

ACKNOWLEDGMENT OF EXERCISE

The undersigned Merrimack Pharmaceuticals, Inc., hereby acknowledge receipt of the "Notice of Exercise" from Hercules Technology Growth Capital, Inc., to purchase [ ] shares of the Series D Preferred Stock of Merrimack Pharmaceuticals, Inc., pursuant to the terms of the Agreement, and further acknowledges that [ ] shares remain subject to purchase under the terms of the Agreement.

COMPANY: MERRIMACK PHARMACEUTICALS, INC.

By: _____

Title: _____

Date: _____

Exhibit 4.4

NEITHER THIS WARRANT NOR THE SECURITIES ISSUABLE UPON EXERCISE OF THIS WARRANT HAVE BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED. NO SALE OR DISPOSITION MAY BE EFFECTED EXCEPT IN COMPLIANCE WITH RULE 144 UNDER SAID ACT OR WITHOUT AN EFFECTIVE REGISTRATION STATEMENT RELATED THERETO OR AN OPINION OF COUNSEL FOR THE HOLDER, SATISFACTORY TO THE COMPANY, THAT SUCH REGISTRATION IS NOT REQUIRED UNDER THE ACT OR RECEIPT OF A NO-ACTION LETTER FROM THE SECURITIES AND EXCHANGE COMMISSION WITH RESPECT TO SUCH SALE OR DISPOSTION.

WARRANT TO PURCHASE 1,033 SHARES OF SERIES C CONVERTIBLE PREFERRED STOCK

November 22, 2006

THIS CERTIFIES THAT, for value received, **General Electric Capital Corporation** ("Holder") is entitled to subscribe for and purchase One Thousand Thirty Three (1,033) shares of the fully paid and nonassessable Series C Convertible Preferred Stock (the "Shares" or the "Preferred Stock") of Merrimack Pharmaceuticals, Inc., a Massachusetts corporation (the "Company"), at the Warrant Price (as hereinafter defined), subject to the provisions and upon the terms and conditions hereinafter set forth. As used herein, the term "Preferred Stock" shall mean the Company's presently authorized Series C Convertible Preferred Stock and any stock into which such Series C Convertible Preferred Stock may hereafter be converted or exchanged.

1. Warrant Price. The Warrant Price shall initially be One and 889/1000 dollars ($1.889) per share, subject to adjustment as provided in Section 7 below.

2. Conditions to Exercise. The purchase right represented by this Warrant may be exercised at any time, or from time to time, in whole or in part during the term commencing on the date hereof and ending at 5:00 P.M. Pacific time on the fifth anniversary of the date of this Warrant.

3. Method of Exercise; Payment; Issuance of Shares; Issuance of New Warrant.

(a) Cash Exercise. Subject to Section 2 hereof, the purchase right represented by this Warrant may be exercised by the Holder hereof, in whole or in part, by the surrender of this Warrant (with a duly executed Notice of Exercise in the form attached hereto) at the principal office of the Company (as set forth in Section 18 below) and by payment to the Company, by check, of an amount equal to the then applicable Warrant Price per share multiplied by the number of shares then being purchased. In the event of any exercise of the rights represented by this Warrant, certificates for the shares of stock so purchased shall be in the name of, and delivered to, the Holder hereof, or as such Holder may direct (subject to the terms of transfer contained herein and upon payment by such Holder hereof of any applicable transfer taxes). Such delivery shall be made within 30 days after exercise of the Warrant and at the Company's expense and, unless this Warrant has been fully exercised or expired, a new Warrant having terms and conditions

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substantially identical to this Warrant and representing the portion of the Shares, if any, with respect to which this Warrant shall not have been exercised, shall also be issued to the Holder hereof within 30 days after exercise of the Warrant.

(b) Net Issue Exercise. Holder may also elect to receive shares equal to the value of this Warrant (or of any portion thereof remaining unexercised) by surrender of this Warrant at the principal office of the Company together with notice of such election, in which event the Company shall issue to Holder the number of shares of the Company's Preferred Stock computed using the following formula:

$$X = \frac{Y\,(A-B)}{A}$$

Where X = the number of shares of Preferred Stock to be issued to Holder.

Y = the number of shares of Preferred Stock purchasable under this Warrant (at the date of such calculation).

A = the Fair Market Value of one share of the Company's Preferred Stock (at the date of such calculation).

B = Warrant Price (as adjusted to the date of such calculation).

(c) Fair Market Value. For purposes of this Section 3, Fair Market Value of one share of the Company's Preferred Stock shall mean:

(i) In the event of an exercise in connection with an Initial Public Offering, the per share Fair Market Value for the Preferred Stock shall be the Offering Price at which the underwriters initially sell Common Stock to the public multiplied by the number of shares of Common Stock into which each share of Preferred Stock is then convertible; or

(ii) The average of the closing bid and asked prices of Common Stock quoted in the Over-The-Counter Market Summary, the last reported sale price quoted on the Nasdaq National Market ("NNM") or on any exchange on which the Common Stock is listed, whichever is applicable, as published in the Western Edition of the Wall Street Journal for the ten (10) trading days prior to the date of determination of Fair Market Value, multiplied by the number of shares of Common Stock into which each share of Preferred Stock is then convertible; or

(iii) In the event of an exercise in connection with a merger, acquisition or other consolidation in which the Company is not the surviving entity, the per share Fair Market Value for the Preferred Stock shall be the value to be received per share of Preferred Stock by all holders of the Preferred Stock in such transaction as determined by the Board of Directors; or

(iv) In any other instance, the per share Fair Market Value for the Preferred Stock shall be as determined in good faith by the Company's Board of Directors. In the event of 3(c)(iii) above, the Company's Board of Directors shall prepare a certificate, to be signed by an authorized officer of the Company, setting forth in reasonable detail the basis for and method of determination of the per share Fair Market Value of the Preferred Stock. The Board will also certify to the Holder that this per share Fair Market Value will be applicable to all holders of the Company's Preferred Stock. Such certification must be made to Holder at least ten (10) business days prior to the

proposed effective date of the merger, consolidation, sale, or other triggering event as defined in 3(c)(iii).

(d) Automatic Exercise. To the extent this Warrant is not previously exercised, it shall be automatically exercised in accordance with Sections 3(b) and 3(c) hereof (even if not surrendered) immediately before its expiration, involuntary termination or cancellation.

4. Representations and Warranties of Holder and the Company

(a) Representations and Warranties by Holder. The Holder represents and warrants to the Company with respect to this purchase as follows:

(i) The Holder has substantial experience in evaluating and investing in private placement transactions of securities of companies similar to the Company so that the Holder is capable of evaluating the merits and risks of its investment in the Company and has the capacity to protect its interests.

(ii) Except for transfers to a Holder affiliate, the Holder is acquiring the Warrant and the Shares of Preferred Stock issuable upon exercise of the Warrant (collectively the "Securities") for investment for its own account and not with a view to, or for resale in connection with, any distribution thereof and with no present intention of offering or distributing such securities (or any portion thereof). The Holder understands that the Securities have not been registered under the Securities Act of 1933, as amended (the "Act") by reason of a specific exemption from the registration provisions of the Act which depends upon, among other things, the bona fide nature of the investment intent as expressed herein.

(iii) The Holder acknowledges that the Securities must be held indefinitely unless subsequently registered under the Act or an exemption from such registration is available. The Holder is aware of the provisions of Rule 144 promulgated under the Act.

(iv) The Holder is an "accredited investor" within the meaning of Regulation D promulgated under the Act.

(v) The Holder has had an opportunity to discuss the Company's business, management and financial affairs with its management and an opportunity to review the Company's facilities.

(b) Company hereby represents and warrants to Holder that, [except as set forth in the schedule attached to this Warrant as Exhibit A (the "Disclosure Schedule")], the statements in the following paragraphs of this Section 4(b) are true and correct (a) as of the date hereof and (b) except where any such representation and warranty relates specifically to an earlier date, as of the date of any exercise of this Warrant, provided that Company may, within ten (10) days of Holder providing notice of its intent to exercise this Warrant, update the Disclosure Schedule in writing, so long as the updates would have no material adverse effect on the value of the Securities (other than changes in value of the Securities that result from any future issuances by the Company of debt or equity securities) or the Holder's ability to exercise its rights hereunder.

(i) Corporate Organization and Authority. Company (a) is a corporation duly organized, validly existing, and in good standing in its jurisdiction of incorporation, (b) has the corporate power and authority to own and operate its properties and to carry on its business as now conducted and as proposed to be conducted; and (c) is qualified as a foreign corporation in each jurisdiction where the failure to be so qualified would have or be reasonably expected to have a material adverse effect on the operations or financial condition of the Company.

(ii) Corporate Power. Company has all requisite legal and corporate power and authority to execute, issue and deliver the Warrant, to issue the Preferred Stock issuable upon exercise or conversion of the Warrant, and to carry out and perform its obligations under the Warrant and any related agreements.

(iii) Authorization; Enforceability. All corporate action on the part of Company, its officers, directors and shareholders necessary for the authorization, execution, delivery and performance of its obligations under this Warrant and for the authorization, issuance and delivery of the Warrant and the Warrant Stock issuable upon exercise of the Warrant has been taken and this Warrant constitutes the legally binding and valid obligation of Company enforceable in accordance with its terms.

(iv) Valid Issuance of Warrant and Preferred Stock. The Warrant has been validly issued and is free of restrictions on transfer other than restrictions on transfer set forth herein and under applicable state and federal securities laws. The Preferred Stock issuable upon conversion of this Warrant, when issued, sold and delivered in accordance with the terms of this Warrant for the consideration expressed herein, will be duly and validly issued, fully paid and nonassessable, and will be free of restrictions on transfer other than restrictions on transfer under this Warrant and under applicable state and federal securities laws. Subject to applicable restrictions on transfer, the issuance and delivery of the Warrant and the Preferred Stock issuable upon conversion of the Warrant are not subject to any preemptive or other similar rights or any liens or encumbrances except as specifically set forth in Company's Articles of Organization or this Warrant. The offer, sale and issuance of the Warrant and Preferred Stock, as contemplated by this Warrant, are exempt from the prospectus and registration requirements of applicable United States federal and state security laws, and neither Company nor any authorized agent acting on its behalf has or will take any action hereafter that would cause the loss of such exemption.

(v) No Conflict with Other Instruments. The execution, delivery, and performance of this Warrant will not result in any violation of, be in conflict with, or constitute a default under, with or without the passage of time or the giving of notice (a) any provision of Company's Articles of Organization or by-laws; (b) any provision of any judgment, decree, or order to which Company is a party or by which it is bound or an event which results in the creation of any material lien, charge or encumbrance upon any material assets of Company; (c) any contract, obligation, or commitment to which Company is a party or by which it is bound; or (d) any statute, rule, or governmental regulation applicable to Company.

(vi) Capitalization. As of recent date, the authorized capital stock of Company consists of 70,000,000 shares of Common Stock, without par value, of which 6,172,272 were issued and outstanding, 86,000 shares of Series A

Convertible Preferred Stock, $10 par value, of which 0 shares were issued and outstanding, 6,000,000 shares of Series B Convertible Preferred Stock, without par value, of which 3,873,448 shares were issued and outstanding and 15,100,000 shares of Series C Convertible Preferred Stock, $.01 par value, of which 15,077,604 shares were issued and outstanding, 11,500,000 shares of Series D Convertible Preferred Stock, $.01 par value, of which 8,086,305 were issued and outstanding 15,000,000 shares of Series E Convertible Preferred Stock, $.01 par value, of which 14,444,444 shares were issued and outstanding. The outstanding shares have been duly authorized and validly issued (including, without limitation, issued in compliance with applicable federal and state securities laws), are fully paid and nonassessable. Company has reserved 43,586,814 shares of Common Stock for issuance upon conversion of the Preferred Stock. Except as set forth in Section 4(b) of the Disclosure Schedule, there are no outstanding warrants, options, conversion privileges, preemptive rights or other rights or agreements to purchase or otherwise acquire or issue any equity securities or Convertible Securities of Company, nor has the issuance of any of the aforesaid rights to acquire securities of Company been authorized.

(vii) Governmental Consents. No consent, approval, order or authorization of, or registration, qualification, designation, declaration or filing with, any federal, state or local governmental authority on the part of Company is required in connection with the offer, sale or issuance of the Warrant, or the consummation of any other transaction contemplated hereby, except for the following: (a) the filing of a notice on Form D under the Act and b) the compliance with other applicable state securities laws, which compliance will have occurred within the appropriate time periods therefore. Based in part on the representations made by the Holder in Section 4(a) hereof, the offer, sale and issuance of the Warrant and the shares of Preferred Stock in conformity with the terms of this Warrant are exempt from the registration requirements of the Act and any applicable state laws.

5. Legends.

(a) Each certificate representing the Securities shall be endorsed with the following legend:

> THESE SECURITIES HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933 AND MAY NOT BE TRANSFERRED UNLESS COVERED BY AN EFFECTIVE REGISTRATION STATEMENT UNDER SAID ACT, A “NO ACTION” LETTER FROM THE SECURITIES AND EXCHANGE COMMISSION WITH RESPECT TO SUCH TRANSFER, A TRANSFER MEETING THE REQUIREMENTS OF RULE 144 OF THE SECURITIES AND EXCHANGE COMMISSION, OR AN OPINION OF COUNSEL SATISFACTORY TO THE ISSUER TO THE EFFECT THAT ANY SUCH TRANSFER IS EXEMPT FROM SUCH REGISTRATION.

The Company need not enter into its stock records a transfer of Securities unless the conditions specified in the foregoing legend are satisfied. The Company may also instruct its transfer agent not to allow the transfer of any of the Shares unless the conditions specified in the foregoing legend are satisfied.

(b) Removal of Legend and Transfer Restrictions. The legend relating to the Act endorsed on a certificate pursuant to paragraph 5(a) of this Warrant shall be removed and the Company shall

issue a certificate without such legend to the Holder of the Securities if (i) the Securities are registered under the Act and a prospectus meeting the requirements of Section 10 of the Act is available or (ii) the Holder provides to the Company an opinion of counsel for the Holder reasonably satisfactory to the Company, a no-action letter or interpretive opinion of the staff of the SEC reasonably satisfactory to the Company, or other evidence reasonably satisfactory to the Company, to the effect that public sale, transfer or assignment of the Securities may be made without registration and without compliance with any restriction such as Rule 144.

6. Condition of Transfer or Exercise of Warrant. It shall be a condition to any transfer or exercise of this Warrant that at the time of such transfer or exercise, the Holder shall provide the Company with a representation in writing that the Holder or transferee is acquiring this Warrant and the shares of Preferred Stock to be issued upon exercise for investment purposes only and not with a view to any sale or distribution, or will provide the Company with a statement of pertinent facts covering any proposed distribution. As a further condition to any transfer of this Warrant or any or all of the shares of Preferred Stock issuable upon exercise of this Warrant, other than a transfer registered under the Act, the Company may request a legal opinion, in form and substance satisfactory to the Company and its counsel, reciting the pertinent circumstances surrounding the proposed transfer and stating that such transfer is exempt from the registration and prospectus delivery requirements of the Act. The Company shall not require Holder to provide an opinion of counsel if the transfer is to an affiliate of Holder. Each certificate evidencing the shares issued upon exercise of the Warrant or upon any transfer of the shares (other than a transfer registered under the Act or any subsequent transfer of shares so registered) shall, at the Company’s option, if the Shares are not freely saleable under Rule 144(k) under the Act, contain a legend in form and substance satisfactory to the Company and its counsel, restricting the transfer of the shares to sales or other dispositions exempt from the requirements of the Act. As further condition to each transfer, at the request of the Company, the Holder shall surrender this Warrant to the Company and the transferee shall receive and accept a Warrant, of like tenor and date, executed by the Company.

7. Adjustment for Certain Events. The number and kind of securities purchasable upon the exercise of this Warrant and the Warrant Price shall be subject to adjustment from time to time upon the occurrence of certain events, as follows:

(a) Reclassification or Merger. In case of any reclassification or change of securities of the class issuable upon exercise of this Warrant (other than a change in par value, or from par value to no par value, or from no par value to par value, or as a result of a subdivision or combination), or in case of any merger of the Company with or into another corporation (other than a merger with another corporation in which the Company is the acquiring and the surviving corporation and which does not result in any reclassification or change of outstanding securities issuable upon exercise of this Warrant and other than a merger with another corporation that is a subsidiary of the Company for the purpose of relocating the Company’s jurisdiction of organization), or in case of any sale of all or substantially all of the assets of the Company, the Company, or such successor or purchasing corporation, as the case may be, shall duly execute and deliver to the Holder a new Warrant (in form and substance satisfactory to the Holder of this Warrant), or the Company shall make appropriate provision without the issuance of a new Warrant, so that the Holder shall have the right to receive, at a total purchase price not to exceed that payable upon the exercise of the unexercised portion of this Warrant, and in lieu of the

shares of Preferred Stock theretofore issuable upon exercise of this Warrant, the kind and amount of shares of stock, other securities, money and property receivable upon such reclassification, change, merger or sale by a Holder of the number of shares of Preferred Stock then purchasable under this Warrant, or in the case of such a merger or sale in which the consideration paid consists all or in part of assets other than securities of the successor or purchasing corporation, at the option of the Holder, the securities of the successor or purchasing corporation having a value at the time of the transaction equivalent to the value of the Preferred Stock purchasable upon exercise of this Warrant at the time of the transaction. Any new Warrant shall provide for adjustments that shall be as nearly equivalent as may be practicable to the adjustments provided for in this Section 7. The provisions of this subparagraph (a) shall similarly apply to successive reclassifications, changes, mergers and transfers.

(b) Subdivision or Combination of Shares. If the Company at any time while this Warrant remains outstanding and unexpired shall subdivide or combine its outstanding shares of Preferred Stock, the Warrant Price shall be proportionately decreased and the number of Shares issuable hereunder shall be proportionately increased in the case of a subdivision and the Warrant Price shall be proportionately increased and the number of Shares issuable hereunder shall be proportionately decreased in the case of a combination.

(c) Stock Dividends and Other Distributions. If the Company at any time while this Warrant is outstanding and unexpired shall (i) pay a dividend with respect to Preferred Stock payable in Preferred Stock, then the Warrant Price shall be adjusted, from and after the date of determination of shareholders entitled to receive such dividend or distribution, to that price determined by multiplying the Warrant Price in effect immediately prior to such date of determination by a fraction (A) the numerator of which shall be the total number of shares of Preferred Stock outstanding immediately prior to such dividend or distribution, and (B) the denominator of which shall be the total number of shares of Preferred Stock outstanding immediately after such dividend or distribution; or (ii) make any other distribution with respect to Preferred Stock (except any distribution specifically provided for in Sections 7(a) and 7(b)), then, in each such case, provision shall be made by the Company such that the Holder of this Warrant shall receive upon exercise of this Warrant a proportionate share of any such dividend or distribution as though it were the Holder of the Preferred Stock (or Common Stock issuable upon conversion thereof) as of the record date fixed for the determination of the shareholders of the Company entitled to receive such dividend or distribution.

(d) Adjustment of Number of Shares. Upon each adjustment in the Warrant Price, the number of Shares purchasable hereunder shall be adjusted, to the nearest whole share, to the product obtained by multiplying the number of Shares purchasable immediately prior to such adjustment in the Warrant Price by a fraction, the numerator of which shall be the Warrant Price immediately prior to such adjustment and the denominator of which shall be the Warrant Price immediately thereafter.

8. Notice of Adjustments. Whenever any Warrant Price or the kind or number of securities issuable under this Warrant shall be adjusted pursuant to Section 7 hereof, the Company shall prepare a certificate signed by an officer of the Company setting forth, in reasonable detail, the event requiring the adjustment, the amount of the adjustment, the method by which such adjustment was calculated, and the Warrant Price and number or kind of shares issuable upon

exercise of the Warrant after giving effect to such adjustment, and shall cause copies of such certificate to be mailed (by certified or registered mail, return receipt required, postage prepaid) within thirty (30) days of such adjustment to the Holder of this Warrant as set forth in Section 18 hereof.

9. Transferability of Warrant. This Warrant is transferable on the books of the Company at its principal office by the registered Holder hereof upon surrender of this Warrant properly endorsed, subject to compliance with Section 6 and applicable federal and state securities laws. The Company shall issue and deliver to the transferee a new Warrant representing the Warrant so transferred. Upon any partial transfer, the Company will issue and deliver to Holder a new Warrant with respect to the Warrant not so transferred. Holder shall not have any right to transfer any portion of this Warrant to any direct competitor of the Company.

10. Registration Rights. The Company grants registration rights to the Holder of this Warrant for any Common Stock of the Company obtained upon conversion of the Preferred Stock in parity to the registration rights granted to other holders of the Preferred Stock and agrees that the Holder of this Warrant shall be added as a party to that certain Investor Rights Agreement dated as of December 11, 2003 of the Company (the “Investor Rights Agreement”), and that the Shares shall be made “Registrable Shares” under the Investor Rights Agreement.

11. No Fractional Shares. No fractional share of Preferred Stock will be issued in connection with any exercise hereunder, but in lieu of such fractional share the Company shall make a cash payment therefor upon the basis of the Warrant Price then in effect.

12. Charges, Taxes and Expenses. Issuance of certificates for shares of Preferred Stock upon the exercise of this Warrant shall be made without charge to the Holder for any United States or state of the United States documentary stamp tax or other incidental expense with respect to the issuance of such certificate, all of which taxes and expenses shall be paid by the Company, and such certificates shall be issued in the name of the Holder.

13. No Shareholder Rights Until Exercise. This Warrant does not entitle the Holder hereof to any voting rights or other rights as a shareholder of the Company prior to the exercise hereof.

14. Registry of Warrant. The Company shall maintain a registry showing the name and address of the registered Holder of this Warrant. This Warrant may be surrendered for exchange or exercise, in accordance with its terms, at such office or agency of the Company, and the Company and Holder shall be entitled to rely in all respects, prior to written notice to the contrary, upon such registry.

15. Loss, Theft, Destruction or Mutilation of Warrant. Upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of this Warrant, and, in the case of loss, theft, or destruction, of indemnity reasonably satisfactory to it, and, if mutilated, upon surrender and cancellation of this Warrant, the Company will execute and deliver a new Warrant, having terms and conditions substantially identical to this Warrant, in lieu hereof.

16. Miscellaneous.

(a) Issue Date. The provisions of this Warrant shall be construed and shall be given effect in all respect as if it had been issued and delivered by the Company on the date hereof.

(b) Successors. This Warrant shall be binding upon any successors or assigns of the Company.

(c) Governing Law. This Warrant shall be governed by and construed in accordance with the laws of the State of Connecticut.

(d) Headings. The headings used in this Warrant are used for convenience only and are not to be considered in construing or interpreting this Warrant.

(e) Saturdays, Sundays, Holidays. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall be a Saturday or a Sunday or shall be a legal holiday in the State of Connecticut, then such action may be taken or such right may be exercised on the next succeeding day not a legal holiday.

(f) Waiver of Jury Trial. Each of the parties hereto hereby waives to the fullest extent permitted by applicable law, any right it may have to a trial by jury in respect of any litigation directly or indirectly arising out of, under or in connection with this Warrant or the Shares.

(g) Attorney's Fees. In the event of any dispute between the parties concerning the terms and provisions of this Warrant, the party prevailing in such dispute shall be entitled to collect from the other party all costs incurred in such dispute, including reasonable attorney's fees.

17. No Impairment. The Company will not, by amendment of its Articles of Organization or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such action as may be necessary or appropriate in order to protect the rights of the Holder hereof against impairment.

18. Addresses. Any notice required or permitted hereunder shall be in writing and shall be mailed by overnight courier, registered or certified mail, return receipt required, and postage prepaid, or otherwise delivered by hand or by messenger, addressed as set forth below, or at such other address as the Company or the Holder hereof shall have furnished to the other party.

If to the Company:	**Merrimack Pharmaceuticals, Inc.** One Kendall Square, Bldge 700, 2nd Fl. Cambridge, MA 02139 Attn:
If to the Holder.	**General Electric Capital Corporation** 83 Wooster Heights Road Danbury, CT 06810
Attn:	Credit Manager-Life Science Finance

IN WITNESS WHEREOF, Merrimack Pharmaceuticals, Inc. has caused this Warrant to be executed by its officers thereunto duly authorized.

Dated as of November 22, 2006.

By:	/s/ Robert J. Mulroy
Name:	Robert J. Mulroy
Title:	President & CEO

NOTICE OF EXERCISE
TO:

1. The undersigned Warrantholder ("Holder") elects to acquire shares of the Series C Convertible Preferred Stock (the "Preferred Stock") of Merrimack Pharmaceuticals, Inc., (the "Company"), pursuant to the terms of the Stock Purchase Warrant dated , 200 , (the "Warrant").

2. The Holder exercises its rights under the Warrant as set forth below:

( ) The Holder elects to purchase shares of Preferred Stock as provided in Section 3(a) and tenders herewith a check in the amount of $ as payment of the purchase price.

( ) The Holder elects to convert the purchase rights into shares of Preferred Stock as provided in Section 3(b) of the Warrant.

3. The Holder surrenders the Warrant with this Notice of Exercise.

The Holder represents that it is acquiring the aforesaid shares of Preferred Stock for investment and not with a view to or for resale in connection with distribution and that the Holder has no present intention of distributing or reselling the shares.

Please issue a certificate representing the shares of the Preferred Stock in the name of the Holder or in such other name as is specified below:

Name:

Address:

Taxpayer I.D.:

_____

(Holder)

By: _____

Title: _____

Date: _____

Exhibit 4.5

Form of warrant to purchase shares of Common Stock issued by the Registrant to HF Holding—ABI, MS Seed Capital Partners, LP and Wren Holdings LLC

Holder	Number of shares
HF Holding—ABI	18,092
MS Seed Capital Partners, LP	98,350
Wren Holdings LLC	175,314

MERRIMACK PHARMACEUTICALS, INC.

THIS WARRANT AND ANY SECURITIES ACQUIRED UPON EXERCISE OF THIS WARRANT HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED, OR THE SECURITIES LAW OF ANY STATE AND MAY NOT BE SOLD, TRANSFERRED OR OTHERWISE DISPOSED OF EXCEPT PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER SUCH ACT AND APPLICABLE STATE SECURITIES LAWS OR PURSUANT TO AN APPLICABLE EXEMPTION TO THE REGISTRATION REQUIREMENTS OF SUCH ACT AND SUCH LAWS. THIS WARRANT AND SUCH SECURITIES MAY NOT BE SOLD, TRANSFERRED OR OTHERWISE DISPOSED OF EXCEPT IN COMPLIANCE WITH THE CONDITIONS SPECIFIED IN THIS WARRANT.

SECOND AMENDED AND RESTATED COMMON STOCK PURCHASE WARRANT

SHARES

DECEMBER 30, 2009

(originally issued on December 12, 2003 and last amended and restated on December 26, 2006)

Merrimack Pharmaceuticals, Inc., a Massachusetts corporation (f/k/a Atlantic BioPharmaceuticals, Inc.), hereby certifies that, for value received, (the "Holder"), is entitled, subject to the terms set forth below, to purchase from the Company, up to shares of the Company's Common Stock (the "Warrant Shares"), at a purchase price per share (the "Purchase Price") of $2.47 per share. The number and character of the Warrant Shares and the Purchase Price are subject to adjustment as provided herein.

This Second Amended and Restated Common Stock Purchase Warrant (the "Warrant") amends and restates that certain Common Stock Purchase Warrant issued by the Company to the Holder on December 26, 2006 (the "First Amended and Restated Warrant"), which amended and restated that certain Common Stock Purchase Warrant issued by the Company to the Holder on December 12, 2003, as subsequently amended on March 3, 2006 (the "Original Warrant"). The Original Warrant was issued pursuant to that certain Series C Convertible Preferred Stock Purchase Agreement dated as of December 10, 2003 (the "Stock Purchase Agreement"), a copy of which is on file at the principal office of the Company. The Original Warrant and the First Amended and Restated Warrant, and any amendments thereto, shall have no further force or effect. The terms of this Warrant shall be subject to all the terms and conditions set forth in the Stock Purchase Agreement to which the Original Warrant was subject. Furthermore, the Common Stock issuable upon exercise of the Warrant Shares shall be subject to the provisions of the Restated Articles of Organization of the Company, as from time to time amended and/or restated (the "Articles of Organization"), to which Holder hereby assents.

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1. Definitions.

As used herein, the following terms, unless the context otherwise requires, have the following respective meanings:

(a) The term "Company" shall mean Merrimack Pharmaceuticals, Inc., a Massachusetts corporation (f/k/a Atlantic BioPharmaceuticals, Inc.), and any corporation that shall succeed to or assume the obligations of Merrimack Pharmaceuticals, Inc. hereunder.

(b) The term "Common Stock" shall mean the Company's common stock, without par value.

(c) The term "Market Price" shall mean, on any date specified herein, the amount per share of the Common Stock, equal to (i) the last reported sale price of such Common Stock, regular way, on such date or, in case no such sale takes place on such date, the average of the losing bid and asked prices thereof, regular way, on such date, in either case as officially reported on the principal national securities exchange on which such Common Stock is then listed or admitted for trading, or (ii) if such Common Stock is not then listed or admitted for trading on any national securities exchange but is designated as a national market system security by FINRA, the last reported trading price of the Common Stock on such date, or (iii) if there shall have been no trading on such date or if the Common Stock is not so designated, the average of the closing bid and asked prices of the Common Stock on such date as shown by the principal automated quotation system on which such Common Stock is quoted, or (iv) if such Common Stock is not then listed or admitted for trading on any national exchange or quoted in the over-the-counter market, the fair value thereof (as of a date which is within 20 days of the date as of which the determination is to be made) determined in good faith by the Board of Directors of the Company.

(d) The term "Other Securities" shall mean any stock (other than Common Stock) and other securities of the Company or any other person (corporate or otherwise) which Holder at any time shall be entitled to receive, or shall have received, upon exercise of this Warrant, in lieu of or in addition to Common Stock, or which at any time shall be issuable or shall have been issued in exchange for or in replacement of Common Stock.

(e) The term "Person" shall mean an individual, firm, partnership, association, unincorporated organization, trust, corporation, or any other entity.

2. Exercise of Warrant.

2.1 Exercise Procedure. This Warrant may be exercised by the Holder hereof, in whole or in part, at any time or from time to time prior to the Expiration Date, by surrendering to the Company at its principal office this Warrant, with the form of Election to Purchase Shares attached hereto as **Exhibit A** duly executed by the Holder and accompanied by payment of the Purchase Price for the number of shares of Common Stock specified in such form.

2.2 Payment of Purchase Price. Payment of the Purchase Price may be made as follows (or by any combination of the following): (i) in United States currency by cash or delivery of a certified check or bank draft payable to the order of the Company or by wire

transfer to the Company, (ii) by cancellation of such number of the shares of Common Stock otherwise issuable to the Holder upon such exercise as shall be specified in such Election to Purchase Shares, such that the excess of the aggregate current Market Price of such specified number of shares on the date of exercise over the portion of the Purchase Price attributable to such shares shall equal the Purchase Price attributable to the shares of Common Stock to be issued upon such exercise, in which case such amount shall be deemed to have been paid to the Company and the number of shares issuable upon such exercise shall be reduced by such specified number, or (iii) by surrender to the Company for cancellation of certificates representing shares of Common Stock of the Company owned by the Holder (properly endorsed for transfer in blank) having a current Market Price on the date of Warrant exercise equal to the Purchase Price.

2.3 Effective Date of Exercise. Each exercise of this Warrant shall be deemed to have been effected immediately prior to the close of business on the business day on which this Warrant shall have been surrendered to, and the Purchase Price shall have been received by, the Company as provided in Section 2.1, and at such time the person of persons in whose name or names any certificate of certificates for shares of Common Stock shall be issuable upon such exercise as provided in Section 3 shall be deemed to have become the holder or holders of record thereof for all purposes.

2.4 Fractional Shares. In no event shall any fractional share of Common Stock be issued upon any exercise of this Warrant. If, upon exercise of this Warrant, Holder would, except as provided in this Section 2.4, be entitled to receive a fractional share of Common Stock, then the Company shall issue the next higher round number of full shares of Common Stock, issuing a full share with respect to such fractional share.

3. Delivery of Stock Certificates.

As soon as practicable after the exercise of this Warrant in full or in part, and in any event within 3 business days thereafter, the Company at its expense (including the payment by it of any applicable taxes) will cause to be issued in the name of and delivered to Holder (or its designee), a certificate or certificates for the number of fully paid and nonassessable shares of Common Stock (or Other Securities) to which Holder shall be entitled on such exercise, together with any other stock or other securities and property (including cash, where applicable) to which Holder is entitled upon such exercise pursuant to Section 2 or otherwise. As used in this Warrant the term “business day” shall mean any day other than a Saturday or a Sunday on which commercial banking industries in the Commonwealth of Massachusetts are authorized to be closed.

4. Consolidation, Merger, etc.

4.1 Adjustments for Consolidation, Merger, Sale of Assets, Reorganization, etc. In case the Company after the date hereof (a) shall consolidate with or merge into any other Person and shall not be the continuing or surviving corporation of such consolidation or merger, or (b) shall permit any other Person to consolidate with or merge into the Company and the Company shall be the continuing or surviving Person but, in connection with such consolidation or merger, the Common Stock shall be changed into or exchanged for stock or other securities of any other

Person or cash or any other property, or (c) shall transfer all or substantially all of its properties or assets to any other Person, or (d) shall effect a capital reorganization or reclassification of the Common Stock, then, and in the case of each such transaction, proper provision shall be made so that, upon the basis and the terms and in the manner provided in this Warrant, the Holder of this Warrant, upon the exercise hereof at any time after the consummation of such transaction, shall be entitled to receive (at the aggregate Purchase Price in effect at the time of such consummation for all Common Stock issuable upon such exercise immediately prior to such consummation), in lieu of the Common Stock issuable upon such exercise prior to such consummation, the highest amount of securities, cash or other property to which such Holder would actually have been entitled as a shareholder upon such consummation if such Holder had exercised this Warrant immediately prior thereto, subject to adjustments (subsequent to such consummation) as nearly equivalent as possible to the adjustments provided for in Section 5, provided that if a purchase, tender or exchange offer shall have been made to and accepted by the holders of more than 50% of the outstanding shares of Common Stock, and if the Holder so designates in a notice given to the Company on or before the date immediately preceding the date of the consummation of such transaction, the Holder of such Warrants shall be entitled to receive the highest amount of securities, cash or other property to which it would actually have been entitled as a shareholder if the Holder of such Warrants had exercised such Warrants prior to the expiration of such purchase, tender or exchange offer and accepted such offer, subject to adjustments (from and after the consummation of such purchase, tender or exchange offer) as nearly equivalent as possible to the adjustments provided for in Sections 3 and 4.

4.2 Assumption of Obligations. Notwithstanding anything contained in the Warrants or in the Stock Purchase Agreement to the contrary, the Company shall not effect any of the transactions described in clauses (a) through (d) of Section 4.1 unless, prior to the consummation thereof, each Person (other than the Company) which may be required to deliver any stock, securities, cash or property upon the exercise of this Warrant as provided herein shall assume any obligations of the Company under this Warrant (and if the Company shall survive the consummation of such transaction, such assumption shall be in addition to and shall not release the Company from, any continuing obligations under this Warrant), and (b) the obligation to deliver to the Holder such shares of stock, securities, cash or property as, in accordance with the foregoing provisions of this Section 4, the Holder may be entitled to receive.

4.3 No Dilution or Impairment. The Company shall not, by amendment of its Articles of Organization or through any consolidation, merger, reorganization, transfer of the assets, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such action as may be necessary or appropriate in order to protect the rights of the Holder of this Warrant against dilution or other impairment. Without limiting

the generality of the foregoing, the Company (a) shall not permit the par value of any shares of stock receivable upon the exercise of this Warrant to exceed the amount payable therefor upon such exercise, (b) shall take all such action as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable shares of stock, and (c) shall not take any action which results in any adjustment of the Purchase Price if the total number of shares of Common Stock issuable after the action upon the exercise of all of the Warrants would exceed the total number of shares of

Common Stock then authorized by the Company's Articles of Organization and available for the purpose of issue upon such exercise.

5. Adjustments of Purchase Price and Number of Warrant Shares.

5.1 Adjustments For Stock Dividends and Stock Splits. In the event that the Company shall (i) issue additional shares of the Common Stock as a dividend or other distribution on outstanding Common Stock or (ii) subdivide or combine its outstanding shares of the Common Stock, then, in each such event, the Purchase Price shall, simultaneously with the happening of such event, be adjusted by multiplying the then Purchase Price by a fraction, the numerator of which shall be the number of shares of Common Stock outstanding immediately prior to such event and the denominator of which shall be the number of shares of Common Stock outstanding immediately after such event, and the product so obtained shall thereafter be the Purchase Price then in effect.

5.2 Adjustment of Number of Shares Issuable Pursuant to Warrant. Upon each adjustment of the Purchase Price in accordance with the provisions of this Section 5, the number of Warrant Shares issuable upon exercise of the Warrant shall also be adjusted by multiplying the number of shares of Warrant Shares that would otherwise be issuable (but for the provisions of this Section 5) by a fraction of which (x) the numerator is the Purchase Price in effect immediately prior to the relevant adjustment and (y) the denominator is the Purchase Price as adjusted hereby.

5.3 Notice of Adjustment. Upon any adjustment of the number of Warrant Shares issuable upon exercise of this Warrant or any adjustment of the Purchase Price, then and in such case the Company shall give notice thereof to the Holder, in accordance with Section 10.4 hereof, which notice shall state the number of Warrant Shares issuable upon exercise of this Warrant and the Purchase Price of such Warrant Shares resulting from such adjustment, setting forth in reasonable detail the method upon which such adjustment is based.

6. Investment Representations.

6.1 Accredited Investor. Holder is an "accredited investor" as such term is defined under Regulation D of the Securities Act of 1933, as amended (the "Act").

6.2 Investment Purpose. This Warrant and the right to purchase shares of Common Stock upon the exercise thereof, are being acquired for investment purposes only and not with a view towards, or for sale in connection with, the distribution thereof, and Holder has no present intention of distributing or selling the same except pursuant to an applicable registration or exemption under the Act.

7. No Voting Rights.

This Warrant shall not entitle the holder hereof to any voting rights or other rights as a stockholder of the Company.

8. Registration Rights.

Pursuant to that certain Third Amended and Restated Investor Rights Agreement, dated as of November 5, 2007, between Holder, the Company and the Investors listed therein, as from time to time amended and/or restated, Holder is entitled to certain registration rights with respect to the Warrant Shares.

9. Termination of Warrant.

Holder's right to exercise this Warrant shall expire as of 5:00 p.m., Eastern Time, on December 17, 2011 (the "Expiration Date").

10. Miscellaneous.

10.1 Transfer of Warrant. Subject to Holder's compliance with applicable Federal and state securities laws, this Warrant may be transferred by Holder in whole or in part. Upon surrender of this Warrant for transfer, properly endorsed, to the Company, the Company at its expense will issue and deliver a new Warrant or Warrants of the same denomination and terms, in the name of Holder's transferee(s).

10.2 Replacement of Warrants. On receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of any Warrant and, in the case of any such loss, theft or destruction of any Warrant, on delivery of an indemnity agreement or security reasonably satisfactory in form and amount to the Company or, in the case of any such mutilation, on surrender and cancellation of such Warrant, the Company at its expense will execute and deliver, in lieu thereof, a new Warrant of like tenor; provided, however, if any Warrant is lost, stolen or destroyed, the affidavit of an officer of Holder setting forth the circumstances with respect to such loss, theft or destruction shall be accepted as satisfactory evidence thereof, and no indemnity bond or other security shall be required as a condition to the execution and delivery by the Company of a new Warrant in replacement of such lost, stolen or destroyed Warrant.

10.3 Remedies. The Company stipulates that the remedies at law of Holder in the event of any default or threatened default by the Company in the performance of or compliance with any of the terms of this Warrant are not and will not be adequate, and that such terms may be specifically enforced by a decree for the specific performance of any agreement contained herein or by an injunction against a violation of any of the terms hereof or otherwise.

10.4 Notices. Any notice or other communication required or which may be given hereunder shall be in writing and shall be delivered personally, sent by facsimile transmission (with a copy by mail) or sent by certified, registered or express mail (including Federal Express or other established

overnight delivery service), postage prepaid, as follows:

to the Company:

Merrimack Pharmaceuticals, Inc.
One Kendall Square, Suite B7201
Cambridge, MA 02139
Attention: Robert J. Mulroy, President
Fax: (617) 441-1000

with a copy to:

Wilmer Cutler Pickering Hale and Dorr LLP
60 State Street
Boston, MA 02109
Attention: David E. Redlick, Esq.
Fax: (617) 526-5000

to Holder:

Attention:
Fax:

with a copy to:

Attention:
Fax:

The parties may from time to time amend the above addresses and names by written notice given the other party.

10.5 Significance of Captions. The captions of the Articles, Sections and subsections of this Warrant are for convenience of reference only and shall not affect the meaning or interpretation of any of the provisions hereof.

10.6 Benefit and Binding Effect. This Warrant shall inure to the benefit of the respective personal representatives, successors and assigns of the parties hereto.

10.7 Governing Law. This Warrant shall be governed by, and construed in accordance with, the laws of the Commonwealth of Massachusetts.

10.8 Reservation of Stock. The Company shall at all times reserve and keep available, solely for issuance and delivery upon exercise of the Warrants, the number of shares of Common Stock from time to time issuable upon exercise of all Warrants at the time outstanding. All shares of Common Stock issuable upon exercise of any Warrants shall be duly authorized and, when issued upon such exercise, shall be validly issued and, in the case of shares, fully paid and nonassessable. All Warrant Certificates surrendered upon the exercise of the rights thereby evidenced shall be canceled, and such canceled Warrants shall constitute sufficient evidence of the number of shares of stock which have been issued upon the exercise of such Warrants. Subsequent to the Expiration Date, no shares of stock need to be reserved in respect of any unexercised Warrant.

10.9 Certain Tax Matters. Each of the Company and the Holder reserve its rights to assert, at the time of the exercise of this Warrant or at other times, its position in its respective income tax filings and reporting as to the appropriate characterization of this Warrant for tax purposes, and the execution and delivery of this Warrant shall not be interpreted or construed as support for or against either party's characterization of this Warrant.

10.10 Entire Agreement. This Warrant, together with the Stock Purchase Agreement, represents the entire agreement of the parties hereto with respect to the transactions contemplated hereby and supersedes all prior agreements and understandings.

IN WITNESS WHEREOF, the parties have executed this Warrant under seal as of the day and year first written above.

MERRIMACK PHARMACEUTICALS, INC.

By: _____
Name:
Title:

[HOLDER]

By: _____
Name:
Title:

EXHIBIT A

Election to Purchase Shares

To: Merrimack Pharmaceuticals, Inc.

Date:

The undersigned hereby subscribes for shares of Common Stock of Merrimack Pharmaceuticals, Inc. (the "Company"), as such term is defined in the attached Warrant, evidenced by the attached Warrant and herewith:

(i) makes payment of the Purchase Price, as defined in the attached Warrant, in the amount of $ by means of:

(a) cash or delivery of a certified bank check or bank draft payable to the Company in the amount of $; and/or

(b) wire transfer of funds to the Company in the amount of $.

or

(ii) elects to make a cashless exercise pursuant to Section 2.2(ii) and/or 2.2(iii) of the attached Warrant, in which case shares of Common Stock shall be deemed payment of the Purchase Price, and/or to the extent a cashless exercise is pursuant to Section 2.2(iii), certificates representing shares of Common Stock have been surrendered herewith.

The certificate(s) for such shares shall be issued in the name of the undersigned or as otherwise indicated below:

_____
Signature

_____
Name for Registration

_____
Mailing Address

Form of warrant to purchase shares of Common Stock issued by the Registrant to General Electric Capital Corporation

Issue date	Number of shares
11/22/2006	797
11/22/2006	761
11/22/2006	981
11/22/2006	1,136
11/22/2006	1,005
12/7/2006	859
2/7/2007	1,316
2/7/2007	1,167
2/7/2007	978
2/7/2007	795
2/7/2007	1,149
2/7/2007	907
2/7/2007	2,346
5/2/2007	691
5/2/2007	2,462
5/2/2007	1,405
6/29/2007	5,681
6/29/2007	831
6/29/2007	832
6/29/2007	846
6/29/2007	1,149
6/29/2007	843
6/29/2007	852
6/29/2007	1,048
6/29/2007	1,424
6/29/2007	1,686

Issue date	Number of shares
9/21/2007	2,120
9/21/2007	984
10/29/2007	1,973
2/8/2008	931
2/8/2008	2,322
2/8/2008	1,767
2/8/2008	1,155
3/24/2008	947
3/24/2008	1,226
6/30/2008	1,150
6/30/2008	1,228

NEITHER THIS WARRANT NOR THE SECURITIES ISSUABLE UPON EXERCISE OF THIS WARRANT HAVE BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED. NO SALE OR DISPOSITION MAY BE EFFECTED EXCEPT IN COMPLIANCE WITH RULE 144 UNDER SAID ACT OR WITHOUT AN EFFECTIVE REGISTRATION STATEMENT RELATED THERETO OR AN OPINION OF COUNSEL FOR THE HOLDER, SATISFACTORY TO THE COMPANY, THAT SUCH REGISTRATION IS NOT REQUIRED UNDER THE ACT OR RECEIPT OF A NO-ACTION LETTER FROM THE SECURITIES AND EXCHANGE COMMISSION.

WARRANT TO PURCHASE SHARES OF COMMON STOCK

[Issue Date]

THIS CERTIFIES THAT, for value received, **General Electric Capital Corporation** ("Holder") is entitled to subscribe for and purchase shares of the fully paid and nonassessable Common Stock (the "Shares" or the "Stock") of **Merrimack Pharmaceuticals, Inc**., a Massachusetts corporation (the "Company"), at the Warrant Price (as hereinafter deemed), subject to the provisions and upon the terms and conditions hereinafter set forth.

1. Warrant Price. The Warrant Price shall initially be One and 889/1000 dollars ($1.889) per share, subject to adjustment as provided in Section 7 below.

2. Conditions to Exercise. The purchase right represented by this Warrant may be exercised at any time, or from time to time, in whole or in part during the term commencing on the date hereof and ending at 5:00 P.M. Pacific time on the fifth anniversary of the date of this Warrant.

3. Method of Exercise; Payment; Issuance of Shares; Issuance of New Warrant.

(a) Cash Exercise. Subject to Section 2 hereof, the purchase right represented by this Warrant may be exercised by the Holder hereof, in whole or in part, by the surrender of this Warrant (with a duly executed Notice of Exercise in the form attached hereto) at the principal office of the Company (as set forth in Section 18 below) and by payment to the Company, by check, of an amount equal to the then applicable Warrant Price per share multiplied by the number of shares then being purchased. In the event of any exercise of the rights represented by this Warrant, certificates for the shares of stock so purchased shall be in the name of, and delivered to, the Holder hereof, or as such Holder may direct (subject to the terms of transfer contained herein and upon payment by such Holder hereof of any applicable transfer taxes). Such delivery shall be made within 30 days after exercise of the Warrant and at the Company's expense and, unless this Warrant has been fully exercised or expired, a new Warrant having terms and conditions substantially identical to this Warrant and representing the portion of the Shares, if any, with respect to which this Warrant shall not have been exercised, shall also be issued to the Holder hereof within 30 days after exercise of the Warrant.

(b) Net Issue Exercise. Holder may also elect to receive shares equal to the value of this Warrant (or of any portion thereof remaining unexercised) by surrender of this Warrant at the principal office of the Company together with notice of such election, in which event the

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Company shall issue to Holder the number of shares of the Company's Common Stock computed using the following formula:

$$X = \frac{Y(A-B)}{A}$$

Where X = the number of shares of Stock to be issued to Holder.
Y = the number of shares of Stock purchasable under this Warrant (at the date of such calculation).
A = the Fair Market Value of one share of the Company's Common Stock (at the date of such calculation).
B = Warrant Price (as adjusted to the date of such calculation).

(c) Fair Market Value. For purposes of this Section 3, Fair Market Value of one share of the Company's Stock shall mean:

(i) In the event of an exercise in connection with an Initial Public Offering, the per share Fair Market Value for the Stock shall be the Offering Price at which the underwriters initially sell Common Stock to the public multiplied by the number of shares of Stock; or
(ii) The average of the closing bid and asked prices of Common Stock quoted in the Over-The-Counter Market Summary, the last reported sale price quoted on the Nasdaq National Market ("NNM") or on any exchange on which the Common Stock is listed, whichever is applicable, as published in the Western Edition of the Wall Street Journal for the ten (10) trading days prior to the date of determination of Fair Market Value, multiplied by the number of shares of; or
(iii) In the event of an exercise in connection with a merger, acquisition or other consolidation in which the Company is not the surviving entity, the per share Fair Market Value for the Stock shall be the value to be received per share of Common Stock by all holders of the Common Stock in such transaction as determined by the Board of Directors; or
(iv) In any other instance, the per share Fair Market Value for the Stock shall be as determined in good faith by the Company's Board of Directors. In the event of 3(c)(iii) or 3(c)(iv), above, the Company's Board of Directors shall prepare a certificate, to be signed by an authorized officer of the Company, setting forth in reasonable detail the basis for and method of determination of the per share Fair Market Value of the Stock. The Board will also certify to the Holder that this per share Fair Market Value will be applicable to all holders of the Company's Common Stock. Such certification must be made to Holder at least thirty (30) business days prior to the proposed effective date of the merger, consolidation, sale, or other triggering event as defined in 3(c)(iii) or 3(c)(iv).

(d) Automatic Exercise. To the extent this Warrant is not previously exercised, it shall be automatically exercised in accordance with Sections 3(b) and 3(c) hereof (even if not surrendered) immediately before its expiration, involuntary termination or cancellation.

4. Representations and Warranties of Holder and the Company

(a) Representations and Warranties by Holder. The Holder represents and warrants to the Company with respect to this purchase as follows:

(i) The Holder has substantial experience in evaluating and investing in private placement transactions of securities of companies similar to the Company so that the Holder is capable of evaluating the merits and risks of its investment in the Company and has the capacity to protect its interests.

(ii) Except for transfers to a Holder's affiliates, the Holder is acquiring the Warrant and the Shares of Stock issuable upon exercise of the Warrant (collectively the "Securities") for investment for its own account and not with a view to, or for resale in connection with, any distribution thereof. The Holder understands that the Securities have not been registered under the Securities Act of 1933, as amended (the "Act") by reason of a specific exemption from the registration provisions of the Act which depends upon, among other things, the bona fide nature of the investment intent as expressed herein.

(iii) The Holder acknowledges that the Securities must be held indefinitely unless subsequently registered under the Act or an exemption from such registration is available. The Holder is aware of the provisions of Rule 144 promulgated under the Act.

(iv) The Holder is an "accredited investor" within the meaning of Regulation D promulgated under the Act.

(v) The Holder has had an opportunity to discuss the Company's business, management and financial affairs with its management and an opportunity to review the Company's facilities. The Holder understands that such discussions, as well as the written information issued by the Company, were intended to describe the aspects of the Company's business and prospects which the Company believes to be material but were not necessarily a thorough or exhaustive description.

(b) Company hereby represents and warrants to Holder that, [except as set forth in the schedule attached to this Warrant as Exhibit A (the "Disclosure Schedule")], the statements in the following paragraphs of this Section 4(b) are true and correct (a) as of the date hereof and (b) except where any such representation and warranty relates specifically to an earlier date, as of the date of any exercise of this Warrant.

(i) Corporate Organization and Authority. Company (a) is a corporation duly organized, validly existing, and in good standing in its jurisdiction of incorporation, (b) has the corporate power and authority to own and operate its properties and to carry on its business as now conducted and as proposed to be conducted; and (c) is qualified as a foreign corporation in all jurisdictions where such qualification is required.

(ii) Corporate Power. Company has all requisite legal and corporate power and authority to execute, issue and deliver the Warrant, to issue the Common Stock issuable upon exercise or conversion of the Warrant, and to carry out and perform its obligations under the Warrant and any related agreements.

(iii) Authorization; Enforceability. All corporate action on the part of Company, its officers, directors and shareholders necessary for the authorization, execution, delivery and performance of its obligations under this Warrant and for the authorization, issuance and delivery of the Warrant and Stock issuable upon exercise of the Warrant has been taken and

this Warrant constitutes the legally binding and valid obligation of Company enforceable in accordance with its terms.

(iv) Valid Issuance of Warrant and Common Stock. The Warrant has been validly issued and is free of restrictions on transfer other than restrictions on transfer set forth herein and under applicable state and federal securities laws. The Common Stock issuable upon conversion of this Warrant, when issued, sold and delivered in accordance with the terms of this Warrant for the consideration expressed herein, will be duly and validly issued, fully paid and nonassessable, and will be free of restrictions on transfer other than restrictions on transfer under this Warrant and under applicable state and federal securities laws. Subject to applicable restrictions on transfer, the issuance and delivery of the Warrant and the Common Stock issuable upon conversion of the Warrant are not subject to any preemptive or other similar rights or any liens or encumbrances except as specifically set forth in Company's Certificate of Incorporation or this Warrant. The offer, sale and issuance of the Warrant and Common Stock, as contemplated by this Warrant, are exempt from the prospectus and registration requirements of applicable United States federal and state security laws, and neither Company nor any authorized agent acting on its behalf has or will take any action hereafter that would cause the loss of such exemption.

(v) No Conflict with Other Instruments. The execution, delivery, and performance of this Warrant will not result in any violation of, be in conflict with, or constitute a default under, with or without the passage of time or the giving of notice (a) any provision of Company's Certificate of Incorporation or by-laws; (b) any provision of any judgment, decree, or order to which Company is a party or by which it is bound or an event which results in the creation of any material lien, charge or encumbrance upon any material assets of Company; (c) any contract, obligation, or commitment to which Company is a party or by which it is bound; or (d) any statute, rule, or governmental regulation applicable to Company.

(vi) Capitalization. As of recent date, the authorized capital stock of Company consists of shares of Common Stock, par value, of which were issued and outstanding, [and shares of Preferred Stock, par value, of which were issued and outstanding]. The outstanding shares have been duly authorized and validly issued (including, without limitation, issued in compliance with applicable federal and state securities laws), are fully paid and nonassessable [and have been issued in compliance with the registration and prospectus delivery requirements of the Securities Act and the registration and qualification requirements of all applicable state securities laws, or in compliance with applicable exemptions therefrom]. Company has reserved shares of Common Stock for issuance upon exercise of this Warrant. Except as set forth in Section 4(b) of the Disclosure Schedule, there are no outstanding warrants, options, conversion privileges, preemptive rights or other rights or agreements to purchase or otherwise acquire or issue any equity securities or convertible Securities of Company, nor has the issuance of any of the aforesaid rights to acquire securities of Company been authorized.

(vii) Governmental Consents. No consent, approval, order or authorization of, or registration, qualification, designation, declaration or filing with, any federal, state or local governmental authority on the part of Company is required in connection with the offer, sale or issuance of the Warrant (and the Stock issuable upon the exercise of this Warrant), or the consummation of any other transaction contemplated hereby, except for the following: (a) the filing of a notice on Form D under the Act and b) the compliance with other applicable state

securities laws, which compliance will have occurred within the appropriate time periods therefore. The offer, sale and issuance of the Warrant and the shares of Stock in conformity with the terms of this Warrant are exempt from the registration requirements of the Act and any applicable state laws.

5 Legends.

(a) Each certificate representing the Securities shall be endorsed with the following legend:

> THESE SECURITIES HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933 AND MAY NOT BE TRANSFERRED UNLESS COVERED BY AN EFFECTIVE REGISTRATION STATEMENT UNDER SAID ACT, A "NO ACTION" LETTER FROM THE SECURITIES AND EXCHANGE COMMISSION WITH RESPECT TO SUCH TRANSFER, A TRANSFER MEETING THE REQUIREMENTS OF RULE 144 OF THE SECURITIES AND EXCHANGE COMMISSION, OR (IF REASONABLY REQUIRED BY THE COMPANY) AN OPINION OF COUNSEL SATISFACTORY TO THE ISSUER TO THE EFFECT THAT ANY SUCH TRANSFER IS EXEMPT FROM SUCH REGISTRATION.

The Company need not enter into its stock records a transfer of Securities unless the conditions specified in the foregoing legend are satisfied. The Company may also instruct its transfer agent not to allow the transfer of any of the Shares unless the conditions specified in the foregoing legend are satisfied.

(b) Removal of Legend and Transfer Restrictions. The legend relating to the Act endorsed on a certificate pursuant to paragraph 5(a) of this Warrant shall be removed and the Company shall issue a certificate without such legend to the Holder of the Securities if (i) the Securities are registered under the Act and a

prospectus meeting the requirements of Section 10 of the Act is available or (ii) the Holder provides to the Company an opinion of counsel for the Holder reasonably satisfactory to the Company, a no-action letter or interpretive opinion of the staff of the SEC reasonably satisfactory to the Company, or other evidence reasonably satisfactory to the Company, to the effect that public sale, transfer or assignment of the Securities may be made without registration and without compliance with any restriction such as Rule 144.

6. Condition of Transfer or Exercise of Warrant. It shall be a condition to any transfer or exercise of this Warrant that at the time of such transfer or exercise, the Holder shall provide the Company with a representation in writing that the Holder or transferee is acquiring this Warrant and the shares of Stock to be issued upon exercise for investment purposes only and not with a view to any sale or distribution, or will provide the Company with a statement of pertinent facts covering any proposed distribution. As a further condition to any transfer of this Warrant or any or all of the shares of Stock issuable upon exercise of this Warrant, other than a transfer registered under the Act, the Company may request a legal opinion, in form and substance satisfactory to the Company and its counsel, reciting the pertinent circumstances surrounding the proposed transfer and stating that such transfer is exempt from the registration and prospectus delivery requirements of the Act. The Company shall not require Holder to provide an opinion of counsel if the transfer is to an affiliate of Holder. Each certificate evidencing the shares issued upon exercise of the Warrant or upon any transfer of the shares (other than a transfer registered under the Act or any subsequent transfer of shares so registered) shall, at the Company's option,

if the Shares are not freely saleable under Rule 144(k) under the Act, contain a legend in form and substance satisfactory to the Company and its counsel, restricting the transfer of the shares to sales or other dispositions exempt from the requirements of the Act. As further condition to each transfer, at the request of the Company, the Holder shall surrender this Warrant to the Company and the transferee shall receive and accept a Warrant, of like tenor and date, executed by the Company.

7. Adjustment for Certain Events. The number and kind of securities purchasable upon the exercise of this Warrant and the Warrant Price shall be subject to adjustment from time to time upon the occurrence of certain events, as follows:

(a) Reclassification or Merger. In case of any reclassification or change of securities of the class issuable upon exercise of this Warrant (other than a change in par value, or from par value to no par value, or from no par value to par value, or as a result of a subdivision or combination), or in case of any merger of the Company with or into another corporation (other than a merger with another corporation in which the Company is the acquiring and the surviving corporation and which does not result in any reclassification or change of outstanding securities issuable upon exercise of this Warrant), or in case of any sale of all or substantially all of the assets of the Company, the Company, or such successor or purchasing corporation, as the case may be, shall duly execute and deliver to the Holder a new Warrant (in form and substance satisfactory to the Holder of this Warrant), or the Company shall make appropriate provision without the issuance of a new Warrant, so that the Holder shall have the right to receive, at a total purchase price not to exceed that payable upon the exercise of the unexercised portion of this Warrant, and in lieu of the shares of Stock theretofore issuable upon exercise of this Warrant, the kind and amount of shares of stock, other securities, money and property receivable upon such reclassification, change, merger or sale by a Holder of the number of shares of Stock then purchasable under this Warrant, or in the case of such a merger or sale in which the consideration paid consists all or in part of assets other than securities of the successor or purchasing corporation, at the option of the Holder, the securities of the successor or purchasing corporation having a value at the time of the transaction equivalent to the value of the Stock purchasable upon exercise of this Warrant at the time of the transaction. Any new Warrant shall provide for adjustments that shall be as nearly equivalent as may be practicable to the adjustments provided for in this Section 7. The provisions of this subparagraph (a) shall similarly apply to successive reclassifications, changes, mergers and transfers.

(b) Subdivision or Combination of Shares. If the Company at any time while this Warrant remains outstanding and unexpired shall subdivide or combine its outstanding shares of Common Stock, the Warrant Price shall be proportionately decreased and the number of Shares issuable hereunder shall be proportionately increased in the case of a subdivision and the Warrant Price shall be proportionately increased and the number of Shares issuable hereunder shall be proportionately decreased in the case of a combination.

(c) Stock Dividends and Other Distributions. If the Company at any time while this Warrant is outstanding and unexpired shall (i) pay a dividend with respect to Common Stock payable in Common Stock, then the Warrant Price shall be adjusted, from and after the date of determination of shareholders entitled to receive such dividend or distribution, to that price determined by multiplying the Warrant Price in effect immediately prior to such date of determination by a fraction (A) the numerator of which shall be the total number of shares of Common Stock outstanding immediately prior to such dividend or distribution, and (B) the

denominator of which shall be the total number of shares of Common Stock outstanding immediately after such dividend or distribution; or (ii) make any other distribution with respect to Common Stock (except any distribution specifically provided for in Sections 7(a) and 7(b)), then, in each such case, provision shall be made by the Company such that the Holder of this Warrant shall receive upon exercise of this Warrant a proportionate share of any such dividend or distribution as though it were the Holder of the Common Stock as of the record date fixed for the determination of the shareholders of the Company entitled to receive such dividend or distribution.

(d) Adjustment of Number of Shares. Upon each adjustment in the Warrant Price, the number of Shares purchasable hereunder shall be adjusted, to the nearest whole share, to the product obtained by multiplying the number of Shares purchasable immediately prior to such adjustment in the Warrant Price by a fraction, the numerator of which shall be the Warrant Price immediately prior to such adjustment and the denominator of which shall be the Warrant Price immediately thereafter.

8. Notice of Adjustments. Whenever any Warrant Price or the kind or number of securities issuable under this Warrant shall be adjusted pursuant to Section 7 hereof, the Company shall prepare a certificate signed by an officer of the Company setting forth, in reasonable detail, the event requiring the adjustment, the amount of the adjustment, the method by which such adjustment was calculated, and the Warrant Price and number or kind of shares issuable upon exercise of the Warrant after giving effect to such adjustment, and shall cause copies of such certificate to be mailed (by certified or registered mail, return receipt required, postage prepaid) within thirty (30) days of such adjustment to the Holder of this Warrant as set forth in Section 17 hereof.

9. Transferability of Warrant. This Warrant is transferable on the books of the Company at its principal office by the registered Holder hereof upon surrender of this Warrant properly endorsed, subject to compliance with Section 6 and applicable federal and state securities laws. The Company shall issue and deliver

to the transferee a new Warrant representing the Warrant so transferred. Upon any partial transfer, the Company will issue and deliver to Holder a new Warrant with respect to the Warrant not so transferred. Holder shall not have any right to transfer any portion of this Warrant to any direct competitor of the Company.

10. Registration Rights. The Company grants registration rights to the Holder of this Warrant for any Common Stock of the Company obtained upon exercise of this Warrant in parity to the registration rights granted to other holders of the Common Stock and agrees that the Holder of this Warrant shall be added as a party to that certain dated as of of the Company (the "Registration Rights Agreement"), and that the Shares shall be made "Registrable Securities" under the Registration Rights Agreement.

[Company agrees to provide the registration rights to Holder as stated in the Annex A]

11. No Fractional Shares. No fractional share of Common Stock will be issued in connection with any exercise hereunder, but in lieu of such fractional share the Company shall make a cash payment therefore upon the basis of the Warrant Price then in effect.

12. Charges, Taxes and Expenses. Issuance of certificates for shares of Common Stock upon the exercise of this Warrant shall be made without charge to the Holder for any United States or state

of the United States documentary stamp tax or other incidental expense with respect to the issuance of such certificate, all of which taxes and expenses shall be paid by the Company, and such certificates shall be issued in the name of the Holder.

13. No Shareholder Rights Until Exercise. This Warrant does not entitle the Holder hereof to any voting rights or other rights as a shareholder of the Company prior to the exercise hereof.

14. Registry of Warrant. The Company shall maintain a registry showing the name and address of the registered Holder of this Warrant. This Warrant may be surrendered for exchange or exercise, in accordance with its terms, at such office or agency of the Company, and the Company and Holder shall be entitled to rely in all respects, prior to written notice to the contrary, upon such registry.

15. Loss, Theft, Destruction or Mutilation of Warrant. Upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of this Warrant, and, in the case of loss, theft, or destruction, of indemnity reasonably satisfactory to it, and, if mutilated, upon surrender and cancellation of this Warrant, the Company will execute and deliver a new Warrant, having terms and conditions substantially identical to this Warrant, in lieu hereof.

16. Miscellaneous.

(a) Issue Date. The provisions of this Warrant shall be construed and shall be given effect in all respect as if it had been issued and delivered by the Company on the date hereof.

(b) Successors. This Warrant shall be binding upon any successors or assigns of the Company.

(c) Governing Law. This Warrant shall be governed by and construed in accordance with the laws of the State of Connecticut.

(d) Headings. The headings used in this Warrant are used for convenience only and are not to be considered in construing or interpreting this Warrant.

(e) Saturdays, Sundays. Holidays. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall be a Saturday or a Sunday or shall be a legal holiday in the State of Connecticut, then such action may be taken or such right may be exercised on the next succeeding day not a legal holiday.

(f) Waiver of Jury Trial. Each of the parties hereto hereby waives to the fullest extent permitted by applicable law, any right it may have to a trial by jury in respect of any litigation directly or indirectly arising out of, under or in connection with this Warrant or the Shares.

(g) Attorney's Fees. In the event of any dispute between the parties concerning the terms and provisions of this Warrant, the party prevailing in such dispute shall be entitled to collect from the other party all costs incurred in such dispute, including reasonable attorney's fees.

17. No Impairment. The Company will not, by amendment of its Certificate of Incorporation or

any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such action as may be necessary or appropriate in order to protect the rights of the Holder hereof against impairment.

18. Addresses. Any notice required or permitted hereunder shall be in writing and shall be mailed by overnight courier, registered or certified mail, return receipt required, and postage prepaid, or otherwise delivered by hand or by messenger, addressed as set forth below, or at such other address as the Company or the Holder hereof shall have furnished to the other party.

If to the Company:

Merrimack Pharmaceuticals, Inc.
One Kendall Square, bldg 700, 2nd Floor
Cambridge, MA 02139
Attn:

If to the Holder: **General Electric Capital Corporation**
83 Wooster Heights Road
Danbury, CT 06810
Attn: Credit Manager

IN WITNESS WHEREOF, **Merrimack Pharmaceuticals, Inc.** has caused this Warrant to be executed by its officers thereunto duly authorized.

Dated as of .

By: _____

Name: _____

Title: _____

NOTICE OF EXERCISE
TO:

The undersigned Warrantholder ("Holder") elects to acquire shares of Stock (the "Common Stock") of **Merrimack Pharmaceuticals, Inc**., (the "Company"), pursuant to the terms of the Stock Purchase Warrant dated (the "Warrant").

1. The Holder exercises its rights under the Warrant as set forth below:

   o The Holder elects to purchase shares of Common Stock as provided in Section 3(a) and tenders herewith a check in the amount of $ as payment of the purchase price.

   o The Holder elects to convert the purchase rights into shares of Common Stock as provided in Section 3(b) of the Warrant.

2. The Holder surrenders the Warrant with this Notice of Exercise.

The Holder represents that it is acquiring the aforesaid shares of Common Stock for investment and not with a view to or for resale in connection with distribution and that the Holder has no present intention of distributing or reselling the shares.

Please issue a certificate representing the shares of the Common Stock in the name of the Holder or in such other name as is specified below:

Name:
Address:

Taxpayer I.D.:

_____
(Holder)

By: _____

Title: _____

Date: _____

Form of warrant to purchase shares of Common Stock issued by the Registrant to various parties expiring on December 10, 2015

Holder	Issue date	Number of shares
NG White Cloud, LLC	8/25/2010	26,667
Joseph Alagna	10/8/2010	166
Estelle H. Berrebi-Hurst	10/8/2010	6,882
Akiva Feinsod	10/8/2010	70,205
Alan Furst	10/8/2010	5,956
Jeffrey Gropper	10/8/2010	55,849
Andrew Katz	10/8/2010	6,935
Stephen Salzman	10/8/2010	1,323
Stephan A. Stein	10/8/2010	298
Steven Yablon	10/8/2010	13,552
Gary Gelbfish	10/8/2010	135,000
Gregg Gropper	10/8/2010	3,046
Alan Osmond	10/26/2010	10,000
Jared Kotler	11/23/2010	1,323
Alan Biren	12/2/2010	3,309
Joseph Duarte	12/2/2010	199
Laurence Gershman	12/16/2010	11,660
Stuart Russo	1/18/2011	97,604

MERRIMACK PHARMACEUTICALS, INC.

THIS WARRANT AND ANY SECURITIES ACQUIRED UPON EXERCISE OF THIS WARRANT HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED, OR THE SECURITIES LAW OF ANY STATE AND MAY NOT BE SOLD, TRANSFERRED OR OTHERWISE DISPOSED OF EXCEPT PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER SUCH ACT AND APPLICABLE STATE SECURITIES LAWS OR PURSUANT TO AN APPLICABLE EXEMPTION TO THE REGISTRATION REQUIREMENTS OF SUCH ACT AND SUCH LAWS. THIS WARRANT AND SUCH SECURITIES MAY NOT BE SOLD, TRANSFERRED OR OTHERWISE DISPOSED OF EXCEPT IN COMPLIANCE WITH THE CONDITIONS SPECIFIED IN THIS WARRANT.

AMENDED AND RESTATED COMMON STOCK PURCHASE WARRANT

SHARES

[ISSUE DATE]

(originally issued on December 12, 2003)

Merrimack Pharmaceuticals, Inc., a Massachusetts corporation (f/k/a Atlantic BioPharmaceuticals, Inc.), hereby certifies that, for value received, (the "Holder") is entitled, subject to the terms set forth below, to purchase from the Company, up to shares of the Company's Common Stock (the "Warrant Shares"), at a purchase price per share (the "Purchase Price") of $3.00 per share. The number and character of the Warrant Shares and the Purchase Price are subject to adjustment as provided herein.

This Amended and Restated Common Stock Purchase Warrant (the "Warrant") was transferred to the Holder by Wharton-Merrimack Investors, LLC (the "Transferor") on the date hereof from that certain Amended and Restated Common Stock Purchase Warrant issued by the Company to the Transferor on the date hereof (the "Amended and Restated Warrant"), which amended and restated that certain Common Stock Purchase Warrant issued by the Company to the Transferor on December 12, 2003, as subsequently amended on March 3, 2006 (the "Original Warrant"). The Original Warrant was issued pursuant to that certain Series C Convertible Preferred Stock Purchase Agreement dated as of December 10, 2003 (the "Stock Purchase Agreement"), a copy of which is on file at the principal office of the Company. The Original Warrant and the Amended and Restated Warrant, and any amendments thereto, shall have no further force or effect. The terms of this Warrant shall be subject to all the terms and conditions set forth in the Stock Purchase Agreement to which the Original Warrant was subject. Furthermore, the Common Stock issuable upon exercise of the Warrant Shares shall be subject to the provisions of the articles of organization, certificate of incorporation or similar constituent documents of the Company, as from time to time amended and/or restated (the "Articles of Organization"), to which Holder hereby assents.

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1. Definitions.

As used herein, the following terms, unless the context otherwise requires, have the following respective meanings:

(a) The term "Company" shall mean Merrimack Pharmaceuticals, Inc., a Massachusetts corporation (f/k/a Atlantic BioPharmaceuticals, Inc.), and any corporation that shall succeed to or assume the obligations of Merrimack Pharmaceuticals, Inc. hereunder.

(b) The term "Common Stock" shall mean the Company's common stock, without par value.

(c) The term "Market Price" shall mean, on any date specified herein, the amount per share of the Common Stock, equal to (i) the last reported sale price of such Common Stock, regular way, on such date or, in case no such sale takes place on such date, the average of the losing bid and asked prices

thereof, regular way, on such date, in either case as officially reported on the principal national securities exchange on which such Common Stock is then listed or admitted for trading, or (ii) if such Common Stock is not then listed or admitted for trading on any national securities exchange but is designated as a national market system security by FINRA, the last reported trading price of the Common Stock on such date, or (iii) if there shall have been no trading on such date or if the Common Stock is not so designated, the average of the closing bid and asked prices of the Common Stock on such date as shown by the principal automated quotation system on which such Common Stock is quoted, or (iv) if such Common Stock is not then listed or admitted for trading on any national exchange or quoted in the over-the-counter market, the fair value thereof (as of a date which is within 20 days of the date as of which the determination is to be made) determined in good faith by the Board of Directors of the Company.

(d) The term "Other Securities" shall mean any stock (other than Common Stock) and other securities of the Company or any other person (corporate or otherwise) which Holder at any time shall be entitled to receive, or shall have received, upon exercise of this Warrant, in lieu of or in addition to Common Stock, or which at any time shall be issuable or shall have been issued in exchange for or in replacement of Common Stock.

(e) The term "Person" shall mean an individual, firm, partnership, association, unincorporated organization, trust, corporation, or any other entity.

2. Exercise of Warrant.

2.1 Exercise Procedure. This Warrant may be exercised by the Holder hereof, in whole or in part, at any time or from time to time prior to the Expiration Date, by surrendering to the Company at its principal office this Warrant, with the form of Election to Purchase Shares attached hereto as **Exhibit A** duly executed by the Holder and accompanied by payment of the Purchase Price for the number of shares of Common Stock specified in such form.

2.2 Payment of Purchase Price. Payment of the Purchase Price may be made as follows (or by any combination of the following): (i) in United States currency by cash or delivery of a certified check or bank draft payable to the order of the Company or by wire

transfer to the Company, (ii) by cancellation of such number of the shares of Common Stock otherwise issuable to the Holder upon such exercise as shall be specified in such Election to Purchase Shares, such that the excess of the aggregate current Market Price of such specified number of shares on the date of exercise over the portion of the Purchase Price attributable to such shares shall equal the Purchase Price attributable to the shares of Common Stock to be issued upon such exercise, in which case such amount shall be deemed to have been paid to the Company and the number of shares issuable upon such exercise shall be reduced by such specified number, or (iii) by surrender to the Company for cancellation of certificates representing shares of Common Stock of the Company owned by the Holder (properly endorsed for transfer in blank) having a current Market Price on the date of Warrant exercise equal to the Purchase Price.

2.3 Effective Date of Exercise. Each exercise of this Warrant shall be deemed to have been effected immediately prior to the close of business on the business day on which this Warrant shall have been surrendered to, and the Purchase Price shall have been received by, the Company as provided in Section 2.1, and at such time the person of persons in whose name or names any certificate of certificates for shares of Common Stock shall be issuable upon such exercise as provided in Section 3 shall be deemed to have become the holder or holders of record thereof for all purposes.

2.4 Fractional Shares. In no event shall any fractional share of Common Stock be issued upon any exercise of this Warrant. If, upon exercise of this Warrant, Holder would, except as provided in this Section 2.4, be entitled to receive a fractional share of Common Stock, then the Company shall issue the next higher round number of full shares of Common Stock, issuing a full share with respect to such fractional share.

3. Delivery of Stock Certificates.

As soon as practicable after the exercise of this Warrant in full or in part, and in any event within 3 business days thereafter, the Company at its expense (including the payment by it of any applicable taxes) will cause to be issued in the name of and delivered to Holder (or its designee), a certificate or certificates for the number of fully paid and nonassessable shares of Common Stock (or Other Securities) to which Holder shall be entitled on such exercise, together with any other stock or other securities and property (including cash, where applicable) to which Holder is entitled upon such exercise pursuant to Section 2 or otherwise. As used in this Warrant the term "business day" shall mean any day other than a Saturday or a Sunday on which commercial banking industries in the Commonwealth of Massachusetts are authorized to be closed.

4. Consolidation, Merger, etc.

4.1 Adjustments for Consolidation, Merger, Sale of Assets, Reorganization, etc. In case the Company after the date hereof (a) shall consolidate with or merge into any other Person and shall not be the continuing or surviving corporation of such consolidation or merger, or (b) shall permit any other Person to consolidate with or merge into the Company and the Company shall be the continuing or surviving Person but, in connection with such consolidation or merger, the Common Stock shall be changed into or exchanged for stock or other securities of any other

Person or cash or any other property, or (c) shall transfer all or substantially all of its properties or assets to any other Person, or (d) shall effect a capital reorganization or reclassification of the Common Stock, then, and in the case of each such transaction, proper provision shall be made so that, upon the basis and the terms and in the manner provided in this Warrant, the Holder of this Warrant, upon the exercise hereof at any time after the consummation of such transaction, shall be entitled to receive (at the aggregate Purchase Price in effect at the time of such consummation for all Common Stock issuable upon such exercise immediately prior to such consummation), in lieu of the Common Stock issuable upon such exercise prior to such consummation, the highest amount of securities, cash or other property to which such Holder would actually have been entitled as a shareholder upon such consummation if such Holder had exercised this Warrant immediately prior thereto, subject to adjustments (subsequent to such consummation) as nearly equivalent as possible to the adjustments provided for in Section 5, provided that if a purchase, tender or exchange offer shall have been made to and accepted by the holders of more than 50% of the outstanding shares of Common Stock, and if the Holder so designates in a notice given to the Company on or before the date immediately preceding the date of the consummation of such transaction, the Holder of such Warrants shall be entitled to receive the highest amount of securities, cash or other property to which it would actually have been entitled as a shareholder if the Holder of such Warrants had exercised such Warrants prior to the

expiration of such purchase, tender or exchange offer and accepted such offer, subject to adjustments (from and after the consummation of such purchase, tender or exchange offer) as nearly equivalent as possible to the adjustments provided for in Sections 3 and 4.

4.2 Assumption of Obligations. Notwithstanding anything contained in the Warrants or in the Stock Purchase Agreement to the contrary, the Company shall not effect any of the transactions described in clauses (a) through (d) of Section 4.1 unless, prior to the consummation thereof, each Person (other than the Company) which may be required to deliver any stock, securities, cash or property upon the exercise of this Warrant as provided herein shall assume any obligations of the Company under this Warrant (and if the Company shall survive the consummation of such transaction, such assumption shall be in addition to and shall not release the Company from, any continuing obligations under this Warrant), and (b) the obligation to deliver to the Holder such shares of stock, securities, cash or property as, in accordance with the foregoing provisions of this Section 4, the Holder may be entitled to receive.

4.3 No Dilution or Impairment. The Company shall not, by amendment of its Articles of Organization or through any consolidation, merger, reorganization, transfer of the assets, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such action as may be necessary or appropriate in order to protect the rights of the Holder of this Warrant against dilution or other impairment. Without limiting the generality of the foregoing, the Company (a) shall not permit the par value of any shares of stock receivable upon the exercise of this Warrant to exceed the amount payable therefor upon such exercise, (b) shall take all such action as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable shares of stock, and (c) shall not take any action which results in any adjustment of the Purchase Price if the total number of shares of Common Stock issuable after the action upon the exercise of all of the Warrants would exceed the total number of shares of

Common Stock then authorized by the Articles of Organization and available for the purpose of issue upon such exercise.

5. Adjustments of Purchase Price and Number of Warrant Shares.

5.1 Adjustments For Stock Dividends and Stock Splits. In the event that the Company shall (i) issue additional shares of the Common Stock as a dividend or other distribution on outstanding Common Stock or (ii) subdivide or combine its outstanding shares of the Common Stock, then, in each such event, the Purchase Price shall, simultaneously with the happening of such event, be adjusted by multiplying the then Purchase Price by a fraction, the numerator of which shall be the number of shares of Common Stock outstanding immediately prior to such event and the denominator of which shall be the number of shares of Common Stock outstanding immediately after such event, and the product so obtained shall thereafter be the Purchase Price then in effect.

5.2 Adjustment of Number of Shares Issuable Pursuant to Warrant. Upon each adjustment of the Purchase Price in accordance with the provisions of this Section 5, the number of Warrant Shares issuable upon exercise of the Warrant shall also be adjusted by multiplying the number of shares of Warrant Shares that would otherwise be issuable (but for the provisions of this Section 5) by a fraction of which (x) the numerator is the Purchase Price in effect immediately prior to the relevant adjustment and (y) the denominator is the Purchase Price as adjusted hereby.

5.3 Notice of Adjustment. Upon any adjustment of the number of Warrant Shares issuable upon exercise of this Warrant or any adjustment of the Purchase Price, then and in such case the Company shall give notice thereof to the Holder, in accordance with Section 10.4 hereof, which notice shall state the number of Warrant Shares issuable upon exercise of this Warrant and the Purchase Price of such Warrant Shares resulting from such adjustment, setting forth in reasonable detail the method upon which such adjustment is based.

6. Investment Representations.

6.1 Accredited Investor. Holder is an “accredited investor” as such term is defined under Regulation D of the Securities Act of 1933, as amended (the “Act”).

6.2 Investment Purpose. This Warrant and the right to purchase shares of Common Stock upon the exercise thereof, are being acquired for investment purposes only and not with a view towards, or for sale in connection with, the distribution thereof, and Holder has no present intention of distributing or selling the same except pursuant to an applicable registration or exemption under the Act.

7. No Voting Rights.

This Warrant shall not entitle the holder hereof to any voting rights or other rights as a stockholder of the Company.

8. Registration Rights.

Pursuant to, and subject to the terms and conditions of, that certain Fourth Amended and Restated Investor Rights Agreement, dated as of the date hereof, among Holder, the Company and the Investors listed therein, as from time to time amended and/or restated, Holder is entitled to certain registration rights with respect to the Warrant Shares.

9. Termination of Warrant.

Holder’s right to exercise this Warrant shall expire as of 5:00 p.m., Eastern Time, on December 10, 2015 (the “Expiration Date”).

10. Miscellaneous.

10.1 Transfer of Warrant. Subject to Holder’s compliance with applicable Federal and state securities laws, this Warrant may be transferred by Holder in whole or in part. Upon surrender of this Warrant for transfer, properly endorsed, to the Company, the Company at its expense will issue and deliver a new Warrant or Warrants of the same denomination and terms, in the name of Holder’s transferee(s).

10.2 Replacement of Warrants. On receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of any Warrant and, in the case of any such loss, theft or destruction of any Warrant, on delivery of an indemnity agreement or security reasonably satisfactory in form and amount to the Company or, in the case of any such mutilation, on surrender and cancellation of such Warrant, the Company at its expense will execute and deliver, in lieu thereof, a new Warrant of like tenor; provided, however, if any Warrant is lost, stolen or destroyed, the affidavit of an officer of Holder setting forth the circumstances with respect to such loss, theft or destruction shall be accepted as satisfactory evidence thereof, and no indemnity bond or other security shall be required as a condition to the execution and delivery by the Company of a new Warrant in replacement of such lost, stolen or destroyed Warrant.

10.3 Remedies. The Company stipulates that the remedies at law of Holder in the event of any default or threatened default by the Company in the performance of or compliance with any of the terms of this Warrant are not and will not be adequate, and that such terms may be specifically enforced by a decree for the specific performance of any agreement contained herein or by an injunction against a violation of any of the terms hereof or otherwise.

10.4 Notices. Any notice or other communication required or which may be given hereunder shall be in writing and shall be delivered personally, sent by facsimile transmission (with a copy by mail) or sent by certified, registered or express mail (including Federal Express or other established overnight delivery service), postage prepaid, as follows:

to the Company: Merrimack Pharmaceuticals, Inc.
One Kendall Square, Suite B7201
Cambridge, MA 02139
Attention: Robert J. Mulroy, President
Fax: (617) 441-1000

with a copy to: Wilmer Cutler Pickering Hale and Dorr LLP
60 State Street
Boston, MA 02109
Attention: David E. Redlick, Esq.
Fax: (617) 526-5000

to Holder:

The parties may from time to time amend the above addresses and names by written notice given the other party.

10.5 Significance of Captions. The captions of the Articles, Sections and subsections of this Warrant are for convenience of reference only and shall not affect the meaning or interpretation of any of the provisions hereof.

10.6 Benefit and Binding Effect. This Warrant shall inure to the benefit of the respective personal representatives, successors and assigns of the parties hereto.

10.7 Governing Law. This Warrant shall be governed by, and construed in accordance with, the laws of the Commonwealth of Massachusetts.

10.8 Reservation of Stock. The Company shall at all times reserve and keep available, solely for issuance and delivery upon exercise of the Warrants, the number of shares of Common Stock from time to time issuable upon exercise of all Warrants at the time outstanding. All shares of Common Stock issuable upon exercise of any Warrants shall be duly authorized and, when issued upon such exercise, shall be validly issued and, in the case of shares, fully paid and nonassessable. All Warrant Certificates surrendered upon the exercise of the rights thereby evidenced shall be canceled, and such canceled Warrants shall constitute sufficient evidence of the number of shares of stock which have been issued upon the exercise of such Warrants. Subsequent to the Expiration Date, no shares of stock need to be reserved in respect of any unexercised Warrant.

10.9 Entire Agreement. This Warrant, together with the Stock Purchase Agreement, represents the entire agreement of the parties hereto with respect to the transactions contemplated hereby and supersedes all prior agreements and understandings.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, the parties have executed this Warrant under seal as of the day and year first written above.

MERRIMACK PHARMACEUTICALS, INC.

By: _____
Robert J. Mulroy
President and Chief Executive Officer

[HOLDER]

By:

[Name of Authorized Signatory]

EXHIBIT A

Election to Purchase Shares

To: Merrimack Pharmaceuticals, Inc.

Date: _____

The undersigned hereby subscribes for shares of Common Stock of Merrimack Pharmaceuticals, Inc. (the "Company"), as such term is defined in the attached Warrant, evidenced by the attached Warrant and herewith:

(i) makes payment of the Purchase Price, as defined in the attached Warrant, in the amount of $ by means of:

(a) cash or delivery of a certified bank check or bank draft payable to the Company in the amount of $; and/or

(b) wire transfer of funds to the Company in the amount of $.

or

(ii) elects to make a cashless exercise pursuant to Section 2.2(ii) and/or 2.2(iii) of the attached Warrant, in which case shares of Common Stock shall be deemed payment of the Purchase Price, and/or to the extent a cashless exercise is pursuant to Section 2.2(iii), certificates representing shares of Common Stock have been surrendered herewith.

The certificate(s) for such shares shall be issued in the name of the undersigned or as otherwise indicated below:

_____
Signature

_____
Name for Registration

_____
Mailing Address

Form of warrant to purchase shares of Common Stock issued by the Registrant to various parties expiring on December 17, 2015

Holder	Issue date	Number of shares
Brookbridge Associates, LP	8/25/2010	657,396
David E. Eisenberg	8/25/2010	657,395
NG White Cloud, LLC	8/25/2010	35,555
Wharton-Merrimack Investors, LLC	8/25/2010	2,315
Wharton-Merrimack Investors, LLC	8/25/2010	1,753
Wharton-Merrimack Investors, LLC	8/25/2010	4,244
Wharton-Merrimack Investors, LLC	8/25/2010	649
Wharton-Merrimack Investors, LLC	8/25/2010	584
Wharton-Merrimack Investors, LLC	8/25/2010	556
Richard Brickell	10/8/2010	219
Stephen Nicholas Bunzl	10/8/2010	8,886
Bernard Ettinger	10/8/2010	10,535
Edward Frankel	10/8/2010	1,490
Maurice Haroche	10/8/2010	219
Arthur Jakoby	10/8/2010	351
Andrew Katz	10/8/2010	1,315
Stanley Katz	10/8/2010	9,703
Gary Peresiper	10/8/2010	7,717
Gary Peresiper	10/8/2010	24,680
Adam Raben	10/8/2010	525
Louis Raimondo	10/8/2010	1,543
Carl Schwartz	10/8/2010	263
Jonathan Simon	10/8/2010	3,945
Stephan A. Stein	10/8/2010	1,753
Lenard Thylan	10/8/2010	10,535
Richard Tuch	10/8/2010	24,912

Holder	Issue date	Number of shares
Myles Wittenstein	10/8/2010	438
Steven Yablon	10/8/2010	10,957
Stephen J. Girsky	10/8/2010	3,506
Brian Glick	10/8/2010	1,753
Hugh L. McLaughlin, III	10/8/2010	584
Kenneth Cerruto	10/26/2010	1,158
Carmen Discenza	10/26/2010	7,717
Rowan Farber	10/26/2010	23,843
Robert C. Gay	10/26/2010	8,766
Robert C. Gay 1998 Family Trust	10/26/2010	8,766
Shanholt Glassman Klein Kramer & Co.	10/26/2010	8,766
Brian Loria	11/9/2010	877
Michael A. Gardner	11/23/2010	877
Craig Pierson	11/23/2010	4,244
Stephen Peck	11/23/2010	877
Alan Biren	11/24/2010	13,587
Ellen Gendler	11/24/2010	3,506
Nicholas DeSantis	12/2/2010	1,543
David N. Deutsch	12/16/2010	7,717
Andrew Goodstein	12/16/2010	701
Douglas Lind	12/16/2010	8,766
Roger Dreyer	1/3/2011	11,753
Adam Krupp	1/3/2011	3,945
Laura Lind	1/3/2011	8,767
Jason Russo	1/3/2011	584
Stanley Greenman	1/6/2011	3,068
Alex Gorelik	1/31/2011	3,497
Ronald York	2/2/2011	1,543

Holder	Issue date	Number of shares
Adam Popper	2/8/2011	7,013
Bruce Gropper	2/9/2011	1,096
Adam Weis	2/11/2011	52,594
Mike Caprio	3/8/2011	4,125

Amy Gershman	3/8/2011	2,500
Laurence Gershman	3/8/2011	11,878
Richard Gershman	3/8/2011	10,897
Kevin Mannix	3/8/2011	2,500
John I. Keay	3/8/2011	9,125
Chuck Omphalius	3/8/2011	4,125
Stuart Russo	3/8/2011	11,160
VAM Corporation	3/8/2011	5,000
Adam Weis	3/8/2011	4,500
Edward E. Gladstone	6/28/2011	877

MERRIMACK PHARMACEUTICALS, INC.

THIS WARRANT AND ANY SECURITIES ACQUIRED UPON EXERCISE OF THIS WARRANT HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED, OR THE SECURITIES LAW OF ANY STATE AND MAY NOT BE SOLD, TRANSFERRED OR OTHERWISE DISPOSED OF EXCEPT PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER SUCH ACT AND APPLICABLE STATE SECURITIES LAWS OR PURSUANT TO AN APPLICABLE EXEMPTION TO THE REGISTRATION REQUIREMENTS OF SUCH ACT AND SUCH LAWS. THIS WARRANT AND SUCH SECURITIES MAY NOT BE SOLD, TRANSFERRED OR OTHERWISE DISPOSED OF EXCEPT IN COMPLIANCE WITH THE CONDITIONS SPECIFIED IN THIS WARRANT.

THIRD AMENDED AND RESTATED COMMON STOCK PURCHASE WARRANT

SHARES

[ISSUE DATE]

(originally issued on December 12, 2003, amended and restated on December 26, 2006 and last amended and restated on December 31, 2009)

Merrimack Pharmaceuticals, Inc., a Massachusetts corporation (f/k/a Atlantic BioPharmaceuticals, Inc.), hereby certifies that, for value received, (the "Holder") is entitled, subject to the terms set forth below, to purchase from the Company, up to shares of the Company's Common Stock (the "Warrant Shares"), at a purchase price per share (the "Purchase Price") of $3.00 per share. The number and character of the Warrant Shares and the Purchase Price are subject to adjustment as provided herein.

This Third Amended and Restated Common Stock Purchase Warrant (the "Warrant") was transferred to the Holder by Wharton-Merrimack Investors, LLC (the "Transferor") on the date hereof from that certain Third Amended and Restated Common Stock Purchase Warrant issued by the Company to the Transferor on the date hereof (the "Third Amended and Restated Warrant"), which amended and restated that certain Second Amended and Restated Common Stock Purchase Warrant issued by the Company to the Transferor on December 31, 2009 (the "Second Amended and Restated Warrant"), which amended and restated that certain Common Stock Purchase Warrant issued by the Company to the Transferor on December 26, 2006 (the "First Amended and Restated Warrant"), which amended and restated that certain Common Stock Purchase Warrant issued by the Company to the Transferor on December 12, 2003, as subsequently amended on March 3, 2006 (the "Original Warrant"). The Original Warrant was issued pursuant to that certain Series C Convertible Preferred Stock Purchase Agreement dated as of December 10, 2003 (the "Stock Purchase Agreement"), a copy of which is on file at the principal office of the Company. The Original Warrant, the First Amended and Restated Warrant, the Second Amended and Restated Warrant and the Third Amended and Restated Warrant, and any amendments thereto, shall have no further force or effect. The terms of this Warrant shall be subject to all the terms and conditions set forth in the Stock Purchase Agreement to which the Original Warrant was subject. Furthermore, the Common Stock

issuable upon exercise of the Warrant Shares shall be subject to the provisions of the articles of organization, certificate of incorporation or similar constituent documents of the Company, as from time to time amended and/or restated (the "Articles of Organization"), to which Holder hereby assents.

1. Definitions.

As used herein, the following terms, unless the context otherwise requires, have the following respective meanings:

(a) The term "Company" shall mean Merrimack Pharmaceuticals, Inc., a Massachusetts corporation (f/k/a Atlantic BioPharmaceuticals, Inc.), and any corporation that shall succeed to or assume the obligations of Merrimack Pharmaceuticals, Inc. hereunder.

(b) The term "Common Stock" shall mean the Company's common stock, without par value.

(c) The term "Market Price" shall mean, on any date specified herein, the amount per share of the Common Stock, equal to (i) the last reported sale price of such Common Stock, regular way, on such date or, in case no such sale takes place on such date, the average of the losing bid and asked prices thereof, regular way, on such date, in either case as officially reported on the principal national securities exchange on which such Common Stock is then listed or admitted for trading, or (ii) if such Common Stock is not then listed or admitted for trading on any national securities exchange but is designated as a national market system security by FINRA, the last reported trading price of the Common Stock on such date, or (iii) if there shall have been no trading on such date or if the Common Stock is not so designated, the average of the closing bid and asked prices of the Common Stock on such date as shown by the principal automated quotation system on which such Common Stock is quoted, or (iv) if such Common Stock is not then listed or admitted for trading on any national exchange or quoted in the over-the-counter market, the fair value thereof (as of a date which is within 20 days of the date as of which the determination is to be made) determined in good faith by the Board of Directors of the Company.

(d) The term "Other Securities" shall mean any stock (other than Common Stock) and other securities of the Company or any other person (corporate or otherwise) which Holder at any time shall be entitled to receive, or shall have received, upon exercise of this Warrant, in lieu of or in addition to Common Stock, or which at any time shall be issuable or shall have been issued in exchange for or in replacement of Common Stock.

(e) The term "Person" shall mean an individual, firm, partnership, association, unincorporated organization, trust, corporation, or any other entity.

2. Exercise of Warrant.

2.1 Exercise Procedure. This Warrant may be exercised by the Holder hereof, in whole or in part, at any time or from time to time prior to the Expiration Date, by surrendering to the Company at its principal office this Warrant, with the form of Election to Purchase Shares

attached hereto as **Exhibit A** duly executed by the Holder and accompanied by payment of the Purchase Price for the number of shares of Common Stock specified in such form.

2.2 Payment of Purchase Price. Payment of the Purchase Price may be made as follows (or by any combination of the following): (i) in United States currency by cash or delivery of a certified check or bank draft payable to the order of the Company or by wire transfer to the Company, (ii) by cancellation of such number of the shares of Common Stock otherwise issuable to the Holder upon such exercise as shall be specified in such Election to Purchase Shares, such that the excess of the aggregate current Market Price of such specified number of shares on the date of exercise over the portion of the Purchase Price attributable to such shares shall equal the Purchase Price attributable to the shares of Common Stock to be issued upon such exercise, in which case such amount shall be deemed to have been paid to the Company and the number of shares issuable upon such exercise shall be reduced by such specified number, or (iii) by surrender to the Company for cancellation of certificates representing shares of Common Stock of the Company owned by the Holder (properly endorsed for transfer in blank) having a current Market Price on the date of Warrant exercise equal to the Purchase Price.

2.3 Effective Date of Exercise. Each exercise of this Warrant shall be deemed to have been effected immediately prior to the close of business on the business day on which this Warrant shall have been surrendered to, and the Purchase Price shall have been received by, the Company as provided in Section 2.1, and at such time the person of persons in whose name or names any certificate of certificates for shares of Common Stock shall be issuable upon such exercise as provided in Section 3 shall be deemed to have become the holder or holders of record thereof for all purposes.

2.4 Fractional Shares. In no event shall any fractional share of Common Stock be issued upon any exercise of this Warrant. If, upon exercise of this Warrant, Holder would, except as provided in this Section 2.4, be entitled to receive a fractional share of Common Stock, then the Company shall issue the next higher round number of full shares of Common Stock, issuing a full share with respect to such fractional share.

3. Delivery of Stock Certificates.

As soon as practicable after the exercise of this Warrant in full or in part, and in any event within 3 business days thereafter, the Company at its expense (including the payment by it of any applicable taxes) will cause to be issued in the name of and delivered to Holder (or its designee), a certificate or certificates for the number of fully paid and nonassessable shares of Common Stock (or Other Securities) to which Holder shall be entitled on such exercise, together with any other stock or other securities and property (including cash, where applicable) to which Holder is entitled upon such exercise pursuant to Section 2 or otherwise. As used in this Warrant the term "business day" shall mean any day other than a Saturday or a Sunday on which commercial banking industries in the Commonwealth of Massachusetts are authorized to be closed.

4. Consolidation, Merger, etc.

4.1 Adjustments for Consolidation, Merger, Sale of Assets, Reorganization, etc. In case the Company after the date hereof (a) shall consolidate with or merge into any other Person and shall not be the continuing or surviving corporation of such consolidation or merger, or (b) shall permit any other Person to consolidate with or merge into the Company and the Company shall be the continuing or surviving Person but, in connection with such consolidation or merger, the Common Stock shall be changed into or exchanged for stock or other securities of any other Person or cash or any other property, or (c) shall transfer all or substantially all of its properties or assets to any other Person, or (d) shall effect a capital reorganization or reclassification of the Common Stock, then, and in the case of each such transaction, proper provision shall be made so that, upon the basis and the terms and in the manner provided in this Warrant, the Holder of this Warrant, upon the exercise hereof at any time after the consummation of such transaction, shall be entitled to receive (at the aggregate Purchase Price in effect at the time of such consummation for all Common Stock issuable upon such exercise immediately prior to such consummation), in lieu of the Common Stock issuable upon such exercise prior to such consummation, the highest amount of securities, cash or other property to which such Holder would actually have been entitled as a shareholder upon such consummation if such Holder had exercised this Warrant immediately prior thereto, subject to adjustments (subsequent to such consummation) as nearly equivalent as possible to the adjustments provided for in Section 5, provided that if a purchase, tender or exchange offer shall have been made to and accepted by the holders of more than 50% of the outstanding shares of Common Stock, and if the Holder so designates in a notice given to the Company on or before the date immediately preceding the date of the consummation of such transaction, the Holder of such Warrants shall be entitled to receive the highest amount of securities, cash or other property to which it would actually have been entitled as a shareholder if the Holder of such Warrants had exercised such Warrants prior to the expiration of such purchase, tender or exchange offer and accepted such offer, subject to adjustments (from and after the consummation of such purchase, tender or exchange offer) as nearly equivalent as possible to the adjustments provided for in Sections 3 and 4.

4.2 Assumption of Obligations. Notwithstanding anything contained in the Warrants or in the Stock Purchase Agreement to the contrary, the Company shall not effect any of the transactions described in clauses (a) through (d) of Section 4.1 unless, prior to the consummation thereof, each Person (other than the Company) which may be required to deliver any stock, securities, cash or property upon the exercise of this Warrant as provided herein shall assume any obligations of the Company under this Warrant (and if the Company shall survive the consummation of such transaction, such assumption shall be in addition to and shall not release the Company from, any continuing obligations under this Warrant), and (b) the obligation to deliver to the Holder such shares of stock, securities, cash or property as, in accordance with the foregoing provisions of this Section 4, the Holder may be entitled to receive.

4.3 No Dilution or Impairment. The Company shall not, by amendment of its Articles of Organization or through any consolidation, merger, reorganization, transfer of the assets, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such action as may be necessary or appropriate in order to protect the rights of the Holder of this Warrant against

dilution or other impairment. Without limiting the generality of the foregoing, the Company (a) shall not permit the par value of any shares of stock receivable upon the exercise of this Warrant to exceed the amount payable therefor upon such exercise, (b) shall take all such action as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable shares of stock, and (c) shall not take any action which results in any adjustment of the Purchase Price if the total number of shares of Common Stock issuable after the action upon the exercise of all of the Warrants would exceed the total number of shares of Common Stock then authorized by the Articles of Organization and available for the purpose of issue upon such exercise.

5. Adjustments of Purchase Price and Number of Warrant Shares.

5.1 Adjustments For Stock Dividends and Stock Splits. In the event that the Company shall (i) issue additional shares of the Common Stock as a dividend or other distribution on outstanding Common Stock or (ii) subdivide or combine its outstanding shares of the Common Stock, then, in each such event, the Purchase Price shall, simultaneously with the happening of such event, be adjusted by multiplying the then Purchase Price by a fraction, the numerator of which shall be the number of shares of Common Stock outstanding immediately prior to such event and the denominator of which shall be the number of shares of Common Stock outstanding immediately after such event, and the product so obtained shall thereafter be the Purchase Price then in effect.

5.2 Adjustment of Number of Shares Issuable Pursuant to Warrant. Upon each adjustment of the Purchase Price in accordance with the provisions of this Section 5, the number of Warrant Shares issuable upon exercise of the Warrant shall also be adjusted by multiplying the number of shares of Warrant Shares that would otherwise be issuable (but for the provisions of this Section 5) by a fraction of which (x) the numerator is the Purchase Price in effect immediately prior to the relevant adjustment and (y) the denominator is the Purchase Price as adjusted hereby.

5.3 Notice of Adjustment. Upon any adjustment of the number of Warrant Shares issuable upon exercise of this Warrant or any adjustment of the Purchase Price, then and in such case the Company shall give notice thereof to the Holder, in accordance with Section 10.4 hereof, which notice shall state the number of Warrant Shares issuable upon exercise of this Warrant and the Purchase Price of such Warrant Shares resulting from such adjustment, setting forth in reasonable detail the method upon which such adjustment is based.

6. Investment Representations.

6.1 Accredited Investor. Holder is an “accredited investor” as such term is defined under Regulation D of the Securities Act of 1933, as amended (the “Act”).

6.2 Investment Purpose. This Warrant and the right to purchase shares of Common Stock upon the exercise thereof, are being acquired for investment purposes only and not with a view towards, or for sale in connection with, the distribution thereof, and Holder has no present intention of distributing or selling the same except pursuant to an applicable registration or exemption under the Act.

7. No Voting Rights.

This Warrant shall not entitle the holder hereof to any voting rights or other rights as a stockholder of the Company.

8. Registration Rights.

Pursuant to, and subject to the terms and conditions of, that certain Fourth Amended and Restated Investor Rights Agreement, dated as of the date hereof, among Holder, the Company and the Investors listed therein, as from time to time amended and/or restated, Holder is entitled to certain registration rights with respect to the Warrant Shares.

9. Termination of Warrant.

Holder’s right to exercise this Warrant shall expire as of 5:00 p.m., Eastern Time, on December 17, 2015 (the “Expiration Date”).

10. Miscellaneous.

10.1 Transfer of Warrant. Subject to Holder’s compliance with applicable Federal and state securities laws, this Warrant may be transferred by Holder in whole or in part. Upon surrender of this Warrant for transfer, properly endorsed, to the Company, the Company at its expense will issue and deliver a new Warrant or Warrants of the same denomination and terms, in the name of Holder’s transferee(s).

10.2 Replacement of Warrants. On receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of any Warrant and, in the case of any such loss, theft or destruction of any Warrant, on delivery of an indemnity agreement or security reasonably satisfactory in form and amount to the Company or, in the case of any such mutilation, on surrender and cancellation of such Warrant, the Company at its expense will execute and deliver, in lieu thereof, a new Warrant of like tenor; provided, however, if any Warrant is lost, stolen or destroyed, the affidavit of an officer of Holder setting forth the circumstances with respect to such loss, theft or destruction shall be accepted as satisfactory evidence thereof, and no indemnity bond or other security shall be required as a condition to the execution and delivery by the Company of a new Warrant in replacement of such lost, stolen or destroyed Warrant.

10.3 Remedies. The Company stipulates that the remedies at law of Holder in the event of any default or threatened default by the Company in the performance of or compliance with any of the terms of this Warrant are not and will not be adequate, and that such terms may be specifically enforced by a decree for the specific performance of any agreement contained herein or by an injunction against a violation of any of the terms hereof or otherwise.

10.4 Notices. Any notice or other communication required or which may be given hereunder shall be in writing and shall be delivered personally, sent by facsimile transmission (with a copy by mail) or sent by certified, registered or express mail (including Federal Express or other established overnight delivery service), postage prepaid, as follows:

to the Company:	Merrimack Pharmaceuticals, Inc. One Kendall Square, Suite B7201 Cambridge, MA 02139 Attention: Robert J. Mulroy, President Fax: (617) 441-1000
with a copy to:	Wilmer Cutler Pickering Hale and Dorr LLP 60 State Street Boston, MA 02109 Attention: David E. Redlick, Esq. Fax: (617) 526-5000
to Holder:	

The parties may from time to time amend the above addresses and names by written notice given the other party.

10.5 Significance of Captions. The captions of the Articles, Sections and subsections of this Warrant are for convenience of reference only and shall not affect the meaning or interpretation of any of the provisions hereof.

10.6 Benefit and Binding Effect. This Warrant shall inure to the benefit of the respective personal representatives, successors and assigns of the parties hereto.

10.7 Governing Law. This Warrant shall be governed by, and construed in accordance with, the laws of the Commonwealth of Massachusetts.

10.8 Reservation of Stock. The Company shall at all times reserve and keep available, solely for issuance and delivery upon exercise of the Warrants, the number of shares of Common Stock from time to time issuable upon exercise of all Warrants at the time outstanding. All shares of Common Stock issuable upon exercise of any Warrants shall be duly authorized and, when issued upon such exercise, shall be validly issued and, in the case of shares, fully paid and nonassessable. All Warrant Certificates surrendered upon the exercise of the rights thereby evidenced shall be canceled, and such canceled Warrants shall constitute sufficient evidence of the number of shares of stock which have been issued upon the exercise of such Warrants. Subsequent to the Expiration Date, no shares of stock need to be reserved in respect of any unexercised Warrant.

10.9 Certain Tax Matters. Each of the Company and the Holder reserve its rights to assert, at the time of the exercise of this Warrant or at other times, its position in its respective income tax filings and reporting as to the appropriate characterization of this Warrant for tax purposes, and the execution and delivery of this Warrant shall not be interpreted or construed as support for or against either party's characterization of this Warrant.

10.10 Entire Agreement. This Warrant, together with the Stock Purchase Agreement, represents the entire agreement of the parties hereto with respect to the transactions contemplated hereby and supersedes all prior agreements and understandings.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, the parties have executed this Warrant under seal as of the day and year first written above.

MERRIMACK PHARMACEUTICALS, INC.

By: _____
Robert J. Mulroy
President and Chief Executive Officer

[HOLDER]

By: _____
[Name of Authorized Signatory]

EXHIBIT A

Election to Purchase Shares

To: Merrimack Pharmaceuticals, Inc.

Date:

The undersigned hereby subscribes for shares of Common Stock of Merrimack Pharmaceuticals, Inc. (the "Company"), as such term is defined in the attached Warrant, evidenced by the attached Warrant and herewith:

(i) makes payment of the Purchase Price, as defined in the attached Warrant, in the amount of $ by means of:

(a) cash or delivery of a certified bank check or bank draft payable to the Company in the amount of $; and/or

(b) wire transfer of funds to the Company in the amount of $.

or

(ii) elects to make a cashless exercise pursuant to Section 2.2(ii) and/or 2.2(iii) of the attached Warrant, in which case shares of Common Stock shall be deemed payment of the Purchase Price, and/or to the extent a cashless exercise is pursuant to Section 2.2(iii), certificates representing shares of Common Stock have been surrendered herewith.

The certificate(s) for such shares shall be issued in the name of the undersigned or as otherwise indicated below:

_____

Signature

_____

Name for Registration

_____

Mailing Address

Exhibit 4.9

Form of warrant to purchase shares of Common Stock issued by the Registrant to various parties expiring on March 10, 2016

Holder	Issue date	Number of shares
Brookbridge Associates, LP	8/25/2010	122,383
David E. Eisenberg	8/25/2010	122,383
Stuart Russo	1/18/2011	109,919
Adam Weis	2/8/2011	42,350

MERRIMACK PHARMACEUTICALS, INC.

THIS WARRANT AND ANY SECURITIES ACQUIRED UPON EXERCISE OF THIS WARRANT HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED, OR THE SECURITIES LAW OF ANY STATE AND MAY NOT BE SOLD, TRANSFERRED OR OTHERWISE DISPOSED OF EXCEPT PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER SUCH ACT AND APPLICABLE STATE SECURITIES LAWS OR PURSUANT TO AN APPLICABLE EXEMPTION TO THE REGISTRATION REQUIREMENTS OF SUCH ACT AND SUCH LAWS. THIS WARRANT AND SUCH SECURITIES MAY NOT BE SOLD, TRANSFERRED OR OTHERWISE DISPOSED OF EXCEPT IN COMPLIANCE WITH THE CONDITIONS SPECIFIED IN THIS WARRANT.

AMENDED AND RESTATED COMMON STOCK PURCHASE WARRANT

SHARES

[ISSUE DATE]

(originally issued on March 11, 2004)

Merrimack Pharmaceuticals, Inc., a Massachusetts corporation (f/k/a Atlantic BioPharmaceuticals, Inc.), hereby certifies that, for value received, (the "Holder") is entitled, subject to the terms set forth below, to purchase from the Company, up to shares of the Company's Common Stock (the "Warrant Shares"), at a purchase price per share (the "Purchase Price") of $3.00 per share. The number and character of the Warrant Shares and the Purchase Price are subject to adjustment as provided herein.

This Amended and Restated Common Stock Purchase Warrant (the "Warrant") was transferred to the Holder by Wharton-Merrimack Investors, LLC (the "Transferor") on the date hereof from that certain Amended and Restated Common Stock Purchase Warrant issued by the Company to the Transferor on the date hereof (the "Amended and Restated Warrant"), which amended and restated that certain Common Stock Purchase Warrant issued by the Company to the Transferor on March 11, 2004, as subsequently amended on March 3, 2006 (the "Original Warrant"). The Original Warrant was issued pursuant to that certain Series C Convertible Preferred Stock Purchase Agreement dated as of December 10, 2003 (the "Stock Purchase Agreement"), a copy of which is on file at the principal office of the Company. The Original Warrant and the Amended and Restated Warrant, and any amendments thereto, shall have no further force or effect. The terms of this Warrant shall be subject to all the terms and conditions set forth in the Stock Purchase Agreement to which the Original Warrant was subject. Furthermore, the Common Stock issuable upon exercise of the Warrant Shares shall be subject to the provisions of the articles of organization, certificate of incorporation or similar constituent documents of the Company, as from time to time amended and/or restated (the "Articles of Organization"), to which Holder hereby assents.

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1. Definitions.

As used herein, the following terms, unless the context otherwise requires, have the following respective meanings:

(a) The term "Company" shall mean Merrimack Pharmaceuticals, Inc., a Massachusetts corporation (f/k/a Atlantic BioPharmaceuticals, Inc.), and any corporation that shall succeed to or assume the obligations of Merrimack Pharmaceuticals, Inc. hereunder.

(b) The term "Common Stock" shall mean the Company's common stock, without par value.

(c) The term "Market Price" shall mean, on any date specified herein, the amount per share of the Common Stock, equal to (i) the last reported sale price of such Common Stock, regular way, on such date or, in case no such sale takes place on such date, the average of the losing bid and asked prices thereof, regular way, on such date, in either case as officially reported on the principal national securities exchange on which such Common Stock is then listed or admitted for trading, or (ii) if such Common Stock is not then listed or admitted for trading on any national securities exchange but is designated as a national market system security by FINRA, the last reported trading price of the Common Stock on such date, or (iii) if there shall have been no trading on such date or if the Common Stock is not so designated, the average of the closing bid and asked prices of the Common Stock on such date as shown by the principal automated quotation system on which such Common Stock is quoted, or (iv) if such Common Stock is not then listed or admitted for trading on any national exchange or quoted in the over-the-counter market, the fair value thereof (as of a date which is within 20 days of the date as of which the determination is to be made) determined in good faith by the Board of Directors of the Company.

(d) The term "Other Securities" shall mean any stock (other than Common Stock) and other securities of the Company or any other person (corporate or otherwise) which Holder at any time shall be entitled to receive, or shall have received, upon exercise of this Warrant, in lieu of or in addition to Common Stock, or which at any time shall be issuable or shall have been issued in exchange for or in replacement of Common Stock.

(e) The term "Person" shall mean an individual, firm, partnership, association, unincorporated organization, trust, corporation, or any other entity.

2. Exercise of Warrant.

2.1 Exercise Procedure. This Warrant may be exercised by the Holder hereof, in whole or in part, at any time or from time to time prior to the Expiration Date, by surrendering to the Company at its principal office this Warrant, with the form of Election to Purchase Shares attached hereto as **Exhibit A** duly executed by the Holder and accompanied by payment of the Purchase Price for the number of shares of Common Stock specified in such form.

2.2 Payment of Purchase Price. Payment of the Purchase Price may be made as follows (or by any combination of the following): (i) in United States currency by cash or delivery of a certified check or bank draft payable to the order of the Company or by wire

transfer to the Company, (ii) by cancellation of such number of the shares of Common Stock otherwise issuable to the Holder upon such exercise as shall be specified in such Election to Purchase Shares, such that the excess of the aggregate current Market Price of such specified number of shares on the date of exercise over the portion of the Purchase Price attributable to such shares shall equal the Purchase Price attributable to the shares of Common Stock to be issued upon such exercise, in which case such amount shall be deemed to have been paid to the Company and the number of shares issuable upon such exercise shall be reduced by such specified number, or (iii) by surrender to the Company for cancellation of certificates representing shares of Common Stock of the Company owned by the Holder (properly endorsed for transfer in blank) having a current Market Price on the date of Warrant exercise equal to the Purchase Price.

2.3 Effective Date of Exercise. Each exercise of this Warrant shall be deemed to have been effected immediately prior to the close of business on the business day on which this Warrant shall have been surrendered to, and the Purchase Price shall have been received by, the Company as provided in Section 2.1, and at such time the person of persons in whose name or names any certificate of certificates for shares of Common Stock shall be issuable upon such exercise as provided in Section 3 shall be deemed to have become the holder or holders of record thereof for all purposes.

2.4 Fractional Shares. In no event shall any fractional share of Common Stock be issued upon any exercise of this Warrant. If, upon exercise of this Warrant, Holder would, except as provided in this Section 2.4, be entitled to receive a fractional share of Common Stock, then the Company shall issue the next higher round number of full shares of Common Stock, issuing a full share with respect to such fractional share.

3. Delivery of Stock Certificates.

As soon as practicable after the exercise of this Warrant in full or in part, and in any event within 3 business days thereafter, the Company at its expense (including the payment by it of any applicable taxes) will cause to be issued in the name of and delivered to Holder (or its designee), a certificate or certificates for the number of fully paid and nonassessable shares of Common Stock (or Other Securities) to which Holder shall be entitled on such exercise, together with any other stock or other securities and property (including cash, where applicable) to which Holder is entitled upon such exercise pursuant to Section 2 or otherwise. As used in this Warrant the term "business day" shall mean any day other than a Saturday or a Sunday on which commercial banking industries in the Commonwealth of Massachusetts are authorized to be closed.

4. Consolidation, Merger, etc.

4.1 Adjustments for Consolidation, Merger, Sale of Assets, Reorganization, etc. In case the Company after the date hereof (a) shall consolidate with or merge into any other Person and shall not be the continuing or surviving corporation of such consolidation or merger, or (b) shall permit any other Person to consolidate with or merge into the Company and the Company shall be the continuing or surviving Person but, in connection with such consolidation or merger, the Common Stock shall be changed into or exchanged for stock or other securities of any other

Person or cash or any other property, or (c) shall transfer all or substantially all of its properties or assets to any other Person, or (d) shall effect a capital reorganization or reclassification of the Common Stock, then, and in the case of each such transaction, proper provision shall be made so that, upon the basis and the terms and in the manner provided in this Warrant, the Holder of this Warrant, upon the exercise hereof at any time after the consummation of such transaction, shall be entitled to receive (at the aggregate Purchase Price in effect at the time of such consummation for all Common Stock issuable upon such exercise immediately prior to such consummation), in lieu of the Common Stock issuable upon such exercise prior to such consummation, the highest amount of securities, cash or other property to which such Holder would actually have been entitled as a shareholder upon such consummation if such Holder had exercised this Warrant immediately prior thereto, subject to adjustments (subsequent to such consummation) as nearly equivalent as possible to the adjustments provided for in Section 5, provided that if a purchase, tender or exchange offer shall have been made to and accepted by the holders of more than 50% of the outstanding shares of Common Stock, and if the Holder so designates in a notice given to the Company on or before the date immediately preceding the date of the consummation of such transaction, the Holder of such Warrants shall be entitled to receive the highest amount of securities, cash or other property to which it would actually have been entitled as a shareholder if the Holder of such Warrants had exercised such Warrants prior to the expiration of such purchase, tender or exchange offer and accepted such offer, subject to adjustments (from and after the consummation of such purchase, tender or exchange offer) as nearly equivalent as possible to the adjustments provided for in Sections 3 and 4.

4.2 Assumption of Obligations. Notwithstanding anything contained in the Warrants or in the Stock Purchase Agreement to the contrary, the Company shall not effect any of the transactions described in clauses (a) through (d) of Section 4.1 unless, prior to the consummation thereof, each Person (other than the Company) which may be required to deliver any stock, securities, cash or property upon the exercise of this Warrant as provided herein shall assume any obligations of the Company under this Warrant (and if the Company shall survive the consummation of such transaction, such assumption shall be in addition to and shall not release the Company from, any continuing obligations under this Warrant), and (b) the obligation to deliver to the Holder such shares of stock, securities, cash or property as, in accordance with the foregoing provisions of this Section 4, the Holder may be entitled to receive.

4.3 No Dilution or Impairment. The Company shall not, by amendment of its Articles of Organization or through any consolidation, merger, reorganization, transfer of the assets, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such action as may be necessary or appropriate in order to protect the rights of the Holder of this Warrant against dilution or other impairment. Without limiting

the generality of the foregoing, the Company (a) shall not permit the par value of any shares of stock receivable upon the exercise of this Warrant to exceed the amount payable therefor upon such exercise, (b) shall take all such action as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable shares of stock, and (c) shall not take any action which results in any adjustment of the Purchase Price if the total number of shares of Common Stock issuable after the action upon the exercise of all of the Warrants would exceed the total number of shares of

Common Stock then authorized by the Articles of Organization and available for the purpose of issue upon such exercise.

5. Adjustments of Purchase Price and Number of Warrant Shares.

5.1 Adjustments For Stock Dividends and Stock Splits. In the event that the Company shall (i) issue additional shares of the Common Stock as a dividend or other distribution on outstanding Common Stock or (ii) subdivide or combine its outstanding shares of the Common Stock, then, in each such event, the Purchase Price shall, simultaneously with the happening of such event, be adjusted by multiplying the then Purchase Price by a fraction, the numerator of which shall be the number of shares of Common Stock outstanding immediately prior to such event and the denominator of which shall be the number of shares of Common Stock outstanding immediately after such event, and the product so obtained shall thereafter be the Purchase Price then in effect.

5.2 Adjustment of Number of Shares Issuable Pursuant to Warrant. Upon each adjustment of the Purchase Price in accordance with the provisions of this Section 5, the number of Warrant Shares issuable upon exercise of the Warrant shall also be adjusted by multiplying the number of shares of Warrant Shares that would otherwise be issuable (but for the provisions of this Section 5) by a fraction of which (x) the numerator is the Purchase Price in effect immediately prior to the relevant adjustment and (y) the denominator is the Purchase Price as adjusted hereby.

5.3 Notice of Adjustment. Upon any adjustment of the number of Warrant Shares issuable upon exercise of this Warrant or any adjustment of the Purchase Price, then and in such case the Company shall give notice thereof to the Holder, in accordance with Section 10.4 hereof, which notice shall state the number of Warrant Shares issuable upon exercise of this Warrant and the Purchase Price of such Warrant Shares resulting from such adjustment, setting forth in reasonable detail the method upon which such adjustment is based.

6. Investment Representations.

6.1 Accredited Investor. Holder is an “accredited investor” as such term is defined under Regulation D of the Securities Act of 1933, as amended (the “Act”).

6.2 Investment Purpose. This Warrant and the right to purchase shares of Common Stock upon the exercise thereof, are being acquired for investment purposes only and not with a view towards, or for sale in connection with, the distribution thereof, and Holder has no present intention of distributing or selling the same except pursuant to an applicable registration or exemption under the Act.

7. No Voting Rights.

This Warrant shall not entitle the holder hereof to any voting rights or other rights as a stockholder of the Company.

8. Registration Rights.

Pursuant to, and subject to the terms and conditions of, that certain Fourth Amended and Restated Investor Rights Agreement, dated as of the date hereof, among Holder, the Company and the Investors listed therein, as from time to time amended and/or restated, Holder is entitled to certain registration rights with respect to the Warrant Shares.

9. Termination of Warrant.

Holder’s right to exercise this Warrant shall expire as of 5:00 p.m., Eastern Time, on March 10, 2016 (the “Expiration Date”).

10. Miscellaneous.

10.1 Transfer of Warrant. Subject to Holder’s compliance with applicable Federal and state securities laws, this Warrant may be transferred by Holder in whole or in part. Upon surrender of this Warrant for transfer, properly endorsed, to the Company, the Company at its expense will issue and deliver a new Warrant or Warrants of the same denomination and terms, in the name of Holder’s transferee(s).

10.2 Replacement of Warrants. On receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of any Warrant and, in the case of any such loss, theft or destruction of any Warrant, on delivery of an indemnity agreement or security reasonably satisfactory in form and amount to the Company or, in the case of any such mutilation, on surrender and cancellation of such Warrant, the Company at its expense will execute and deliver, in lieu thereof, a new Warrant of like tenor; provided, however, if any Warrant is lost, stolen or destroyed, the affidavit of an officer of Holder setting forth the circumstances with respect to such loss, theft or destruction shall be accepted as satisfactory evidence thereof, and no indemnity bond or other security shall be required as a condition to the execution and delivery by the Company of a new Warrant in replacement of such lost, stolen or destroyed Warrant.

10.3 Remedies. The Company stipulates that the remedies at law of Holder in the event of any default or threatened default by the Company in the performance of or compliance with any of the terms of this Warrant are not and will not be adequate, and that such terms may be specifically enforced by a decree for the specific performance of any agreement contained herein or by an injunction against a violation of any of the terms hereof or otherwise.

10.4 Notices. Any notice or other communication required or which may be given hereunder shall be in writing and shall be delivered personally, sent by facsimile transmission (with a copy by mail) or sent by certified, registered or express mail (including Federal Express or other established overnight delivery service), postage prepaid, as follows:

to the Company: Merrimack Pharmaceuticals, Inc.
One Kendall Square, Suite B7201
Cambridge, MA 02139
Attention: Robert J. Mulroy, President
Fax: (617) 441-1000

with a copy to: Wilmer Cutler Pickering Hale and Dorr LLP
60 State Street
Boston, MA 02109
Attention: David E. Redlick, Esq.
Fax: (617) 526-5000

to Holder:

The parties may from time to time amend the above addresses and names by written notice given the other party.

10.5 Significance of Captions. The captions of the Articles, Sections and subsections of this Warrant are for convenience of reference only and shall not affect the meaning or interpretation of any of the provisions hereof.

10.6 Benefit and Binding Effect. This Warrant shall inure to the benefit of the respective personal representatives, successors and assigns of the parties hereto.

10.7 Governing Law. This Warrant shall be governed by, and construed in accordance with, the laws of the Commonwealth of Massachusetts.

10.8 Reservation of Stock. The Company shall at all times reserve and keep available, solely for issuance and delivery upon exercise of the Warrants, the number of shares of Common Stock from time to time issuable upon exercise of all Warrants at the time outstanding. All shares of Common Stock issuable upon exercise of any Warrants shall be duly authorized and, when issued upon such exercise, shall be validly issued and, in the case of shares, fully paid and nonassessable. All Warrant Certificates surrendered upon the exercise of the rights thereby evidenced shall be canceled, and such canceled Warrants shall constitute sufficient evidence of the number of shares of stock which have been issued upon the exercise of such Warrants. Subsequent to the Expiration Date, no shares of stock need to be reserved in respect of any unexercised Warrant.

10.9 Entire Agreement. This Warrant, together with the Stock Purchase Agreement, represents the entire agreement of the parties hereto with respect to the transactions contemplated hereby and supersedes all prior agreements and understandings.

IN WITNESS WHEREOF, the parties have executed this Warrant under seal as of the day and year first written above.

MERRIMACK PHARMACEUTICALS, INC.

By: _____
Robert J. Mulroy
President and Chief Executive Officer

[HOLDER]

By: _____
[Name of Authorized Signatory]

EXHIBIT A

Election to Purchase Shares

To: Merrimack Pharmaceuticals, Inc.

Date: _____

The undersigned hereby subscribes for shares of Common Stock of Merrimack Pharmaceuticals, Inc. (the "Company"), as such term is defined in the attached Warrant, evidenced by the attached Warrant and herewith:

(i) makes payment of the Purchase Price, as defined in the attached Warrant, in the amount of $ by means of:

(a) cash or delivery of a certified bank check or bank draft payable to the Company in the amount of $; and/or

(b) wire transfer of funds to the Company in the amount of $.

or

(ii) elects to make a cashless exercise pursuant to Section 2.2(ii) and/or 2.2(iii) of the attached Warrant, in which case shares of Common Stock shall be deemed payment of the Purchase Price, and/or to the extent a cashless exercise is pursuant to Section 2.2(iii), certificates representing shares of Common Stock have been surrendered herewith.

The certificate(s) for such shares shall be issued in the name of the undersigned or as otherwise indicated below:

_____

Signature

_____

Name for Registration

_____

Mailing Address

Merrimack Pharmaceuticals, Inc.
1999 Stock Option Plan
(as amended)

This 1999 Stock Option Plan (the "Plan") is intended to encourage ownership of Common Stock, no par value (the "Stock") of Merrimack Pharmaceuticals, Inc., formerly known as Atlantic BioPharmaceuticals, Inc. (the "Company") by its officers, employees and consultants so as to provide additional incentives to promote the success of the Company through the grant of Incentive Stock Options and Nonstatutory Stock Options (as such terms are defined in Section 3(a) below (collectively, "Options").

1. Administration of the Plan.

The administration of the Plan shall be under the general supervision of the Board of Directors of the Company or any Board of the Board of Directors of the Company to whom authority to administer this Plan is delegated (the "Board"). In the event the Board of Directors delegates administrative authority to a committee, such committee shall be comprised of not less than two members of the Board of Directors who are not also employees of the Company and each of whom shall qualify as a "disinterested person" under Rule l6b-3(c)(2)(i) promulgated under the Securities Exchange Act of 1934, as amended, or any successor definition under said Rule. On and after the date the Company becomes subject to Section 162(m) of the Internal Revenue Code of 1986, as amended (the "Code"), each member of such committee shall also be an "outside director" within the meaning of Section 162(m) of the Code and the regulations promulgated thereunder. Within the limits of the Plan, the Board shall determine the individuals to whom, and the times at which, Options shall be granted, the type of Option to be granted, the duration of each Option, the price and method of payment for each Option, and the time or times within which (during its term) all or portions of each Option may be exercised. The Board may establish such rules as it deems necessary for the proper administration of the Plan, make such determinations and interpretations with respect to the Plan and Options granted under it as may be necessary or desirable and include such further provisions or conditions in Options granted under the Plan as it deems advisable. To the extent permitted by law, the Board may delegate its authority under the Plan to a sub-committee of the Board.

2. Shares Subject to the Plan.

(a) Number and Tyne of Shares. The aggregate number of shares of Stock of the Company which may be optioned under the Plan is 12,600,000 shares, provided, however, that on and after the date the Company is subject to Section 162(m) of the Internal Revenue Code of 1986, as amended, Options with respect to no more than 250,000 shares of Common Stock may be granted to any one individual Participant during any fiscal year period. In the event that the Board in its discretion determines that any stock dividend, split-up, combination or reclassification of shares, recapitalization or other similar capital change affects the Stock such that adjustment is required in order to preserve the benefits or potential benefits of

the Plan or any Option granted under the Plan, the maximum aggregate number and kind of shares or securities of the Company as to which Options may be granted under the Plan and as to which Options then outstanding shall be exercisable, and the option price of such Options, shall be appropriately adjusted by the Board (whose determination shall be conclusive) so that the proportionate number of shares or other securities as to which Options may be granted and the proportionate interest of holders of outstanding Options shall be maintained as before the occurrence of such event.

(b) Effect of Certain Transactions. In the event of a consolidation or merger of the Company with another corporation, or the sale or exchange of all or substantially all of the assets of the Company, or a reorganization or liquidation of the Company, each holder of an outstanding Option shall be entitled to receive upon exercise and payment in accordance with the terms of the Option the same shares, securities or property as he would have been entitled to receive upon the occurrence of such event if he had been, immediately prior to such event, the holder of the number of shares of Stock purchasable under his Option; provided, however, that in lieu of the foregoing the Board of Directors of the Company (the "Board") may upon written notice to each holder of an outstanding Option provide that such Option shall terminate on a date not less than 20 days after the date of such notice unless theretofore exercised. In connection with such notice, the Board may in its discretion accelerate or waive any deferred exercise period.

(c) Restoration of Shares. If any Option expires or is terminated unexercised or is forfeited for any reason or settled in a manner that results in fewer shares outstanding than were initially awarded, including without limitation the surrender of shares in payment of the Option exercise price or any tax obligation thereon, the shares subject to such Option or so surrendered, as the case may be, to the extent of such expiration, termination, forfeiture or decrease, shall again be available for granting Options under the Plan, subject, however, in the case of Incentive Stock Options, to any requirements under the Code (as defined below).

(d) Reservation of Shares. The Company shall at all times while the Plan is in force reserve such number of shares of Stock as will be sufficient to satisfy the requirements of the Plan. Shares issued under the Plan may consist in whole or in part of authorized but unissued shares or treasury shares.

3. Grant of Options: Eligible Persons

(a) Types of Options. Options shall be granted under the Plan either as incentive stock options ("Incentive Stock Options"), as defined in Section 422 of the Internal Revenue Code of 1986, as amended (the "Code") or as Options which do not meet the requirements of Section 422 ("Nonstatutory Stock Options"). Options may be granted from time to time by the Board, within the limits set forth in Sections l and 2 of the Plan, to all employees of the Company or of any parent corporation or subsidiary corporation of the Company (as defined in Sections 424(e) and (f), respectively, of the Code), and, with regard to Nonstatutory Stock Options, to all consultants of the Company.

(b) Date of Grant. The date of grant for each Option shall be the date on which it is approved by the Board, or such later date as the Board may specify. No Options shall be granted hereunder after ten years from the date on which the Plan was approved by the Board.

(c) Automatic Awards. The Board may provide for the automatic award of an Option upon the delivery of shares to the Company in payment of an Option for up to the number of shares so delivered.

4. Form of Options.

Options granted hereunder shall be evidenced by a writing delivered to the optionee specifying the terms and conditions thereof and containing such other terms and conditions not inconsistent with the provisions of the Plan as the Board considers necessary or advisable to achieve the purposes of the Plan or comply with applicable tax and regulatory laws and accounting principles. The form of such Options may vary among optionees.

5. Option Price.

In the case of Incentive Stock Options, the price at which shares may from time to time be optioned shall be determined by the Board, provided that such price shall not be less than the fair market value of the Stock on the date of granting as determined in good faith by the Board; and provided further that no Incentive Stock Option shall be granted to any individual who is ineligible to be granted an Incentive Stock Option because his ownership of stock of the Company or its parent or subsidiary corporations exceeds the limitations set forth in Section 422(b)(6) of the Code unless such option price is at least 110% of the fair market value of the Stock on the date of grant.

In the case of Nonstatutory Stock Options, the price at which shares may from time to time be optioned shall be determined by the Board.

The Board may in its discretion permit the option price to be paid in whole or in part by a note or in installments or with shares of Stock of the Company or such other lawful consideration as the Board may determine.

6. Term of Option and Dates of Exercise.

(a) Exercisability. The Board shall determine the term of all Options, the time or times that Options are exercisable and whether they are exercisable in installments; provided, however, that the term of each non-statutory stock option granted under the Plan shall not exceed a period of eleven years from the date of its grant and the term of each Incentive Stock Option granted under the Plan shall not exceed a period of ten years from the date of its grant, provided that no Incentive Stock Option shall be granted to any individual who is ineligible to be granted such Option because his ownership of stock of the Company or its parent or subsidiary corporations exceeds the limitations set forth in Section 422(b)(6) of the Code unless the term of his Incentive Stock Option does not exceed a period of five years from the date of its grant. In the absence of such determination, the Option shall be exercisable at any time or from time to

time, in whole or in part, during a period of ten years from the date of its grant or, in the case of an Incentive Stock Option, the maximum term of such Option.

(b) Effect of Disability Death or Termination of Employment. The Board shall determine the effect on an Option of the disability, death, retirement or other termination of employment of an optionee and the extent to which, and during the period which, the optionee's estate, legal representative, guardian, or beneficiary on death may exercise rights thereunder. Any beneficiary on death shall be designated by the optionee, in the manner determined by the Board, to exercise rights of the optionee in the case of the optionee's death.

(c) Other Conditions. The Board may impose such conditions with respect to the exercise of Options, including conditions relating to applicable federal or state securities laws, as it considers necessary or advisable.

(d) Withholding. The optionee shall pay to the Company, or make provision satisfactory to the Board for payment of, any taxes required by law to be withheld in respect of any Options under the Plan no later than the date of the event creating the tax liability. In the Board's discretion, such tax obligations may be paid in whole or in part in shares of Stock, including shares retained from the exercise of the Option creating the tax obligation, valued at the fair market value of the Stock on the date of delivery to the Company as determined in good faith by the Board. The Company and any parent corporation or subsidiary corporation of the Company (as defined in Sections 424(e) and (f), respectively, of the Code) may, to the extent permitted by law, deduct any such tax obligations from any payment of any kind otherwise due to the optionee.

(e) Amendment of Options. The Board may amend, modify or terminate any outstanding Option, including substituting therefor another Option of the same or different type, changing the date of exercise or realization and converting an Incentive Stock Option to a Nonstatutory Stock Option, provided that the optionee's consent to such action shall be required unless the Board determines that the action, taking into account any related action, would not materially and adversely affect the optionee.

7. Non-transferability.

Options granted under the Plan shall not be transferable by the holder thereof otherwise than by will or the laws of descent and distribution, and shall be exercisable, during the holder's lifetime, only by him or her.

8. No Right to Employment.

No persons shall have any claim or right to be granted an Option, and the grant of an Option shall not be construed as giving an optionee the right to continued employment. The Company expressly reserves the right at any time to dismiss an optionee free from any liability or claim under the Plan, except as specifically provided in the applicable Option.

9. No Rights as a Shareholder.

Subject to the provisions of the applicable Option, no optionee or any person claiming through an optionee shall have any rights as a shareholder with respect to any shares of Stock to be distributed under the Plan until he or she becomes the holder thereof.

10. Amendment or Termination.

The Board may amend or terminate the Plan at any time, provided that no amendment shall be made without stockholder approval if such approval is necessary to comply with any applicable tax or regulatory requirement, including any requirement for exemptive relief under Section 16(b) of the Securities Exchange Act of 1934, or any successor provision.

11. Stockholder Approval.

The Plan is subject to approval by the stockholders of the Company by the affirmative vote of the holders of a majority of the shares of capital stock of the Company entitled to vote thereon and present or represented at a meeting duly held in accordance with the laws of the State of Massachusetts, or by any other action that would be given the same effect under the laws of such jurisdiction, which action in either case shall be taken within twelve (12) months from the date the Plan was adopted by the Board. In the event such approval is not obtained, all Options granted under the Plan shall be void and without effect.

12. Governing Law.

The provisions of the Plan shall be governed by and interpreted in accordance with the laws of Massachusetts.

Exhibit 10.2

MERRIMACK PHARMACEUTICALS, INC.

2008 STOCK INCENTIVE PLAN

(as amended on April 6, 2011)

1. Purpose

The purpose of this 2008 Stock Incentive Plan (the "Plan") of Merrimack Pharmaceuticals, Inc., a Massachusetts corporation (the "Company"), is to advance the interests of the Company's stockholders by enhancing the Company's ability to attract, retain and motivate persons who are expected to make important contributions to the Company and by providing such persons with equity ownership opportunities and performance-based incentives that are intended to better align the interests of such persons with those of the Company's stockholders. Except where the context otherwise requires, the term "Company" shall include any of the Company's present or future parent or subsidiary corporations as defined in Sections 424(e) or (f) of the Internal Revenue Code of 1986, as amended, and any regulations promulgated thereunder (the "Code") and any other business venture (including, without limitation, joint venture or limited liability company) in which the Company has a controlling interest, as determined by the Board of Directors of the Company (the "Board").

2. Eligibility

All of the Company's employees, officers, directors, consultants and advisors are eligible to be granted options, restricted stock, restricted stock units ("RSUs") and other stock-based awards (each, an "Award") under the Plan. Each person who receives an Award under the Plan is deemed a "Participant".

3. Administration and Delegation

(a) Administration by Board of Directors. The Plan will be administered by the Board. The Board shall have authority to grant Awards and to adopt, amend and repeal such administrative rules, guidelines and practices relating to the Plan as it shall deem advisable. The Board may construe and interpret the terms of the Plan and any Award agreements entered into under the Plan. The Board may correct any defect, supply any omission or reconcile any inconsistency in the Plan or any Award in the manner and to the extent it shall deem expedient to carry the Plan into effect and it shall be the sole and final judge of such expediency. All decisions by the Board shall be made in the Board's sole discretion and shall be final and binding on all persons having or claiming any interest in the Plan or in any Award. No director or person acting pursuant to the authority delegated by the Board shall be liable for any action or determination relating to or under the Plan made in good faith.

(b) Appointment of Committees. To the extent permitted by applicable law, the Board may delegate any or all of its powers under the Plan to one or more committees or subcommittees of the Board (a "Committee"). All references in the Plan to the "Board" shall mean the Board or a Committee of the Board to the extent that the Board's powers or authority under the Plan have been delegated to such Committee.

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4. Stock Available for Awards.

(a) Number of Shares. Subject to adjustment under Section 8, Awards may be made under the Plan for up to the number of shares (up to 19,592,788 shares) of common stock, $0.01 par value per share, of the Company (the "Common Stock") that is equal to the sum of (i) 7,200,000, (ii) the number of shares of Common Stock reserved for issuance under the Company's 1999 Stock Option Plan (the "Existing Plan") that remain available for grant under the Existing Plan immediately prior to the initial adoption of the Plan by the Board and (iii) the number of shares of Common Stock subject to awards granted under the Existing Plan which awards expire, terminate or are otherwise surrendered, canceled, forfeited or repurchased by the Company at their original issuance price pursuant to a contractual repurchase right after the initial adoption of the Plan by the Board (subject, however, in the case of Incentive Stock Options (as hereinafter defined) to any limitations of the Code). If any Award expires or is terminated, surrendered or canceled without having been fully exercised, is forfeited in whole or in part (including as the result of shares of Common Stock subject to such Award being repurchased by the Company at the original issuance price pursuant to a contractual repurchase right), or results in any Common Stock not being issued, the unused Common Stock covered by such Award shall again be available for the grant of Awards under the Plan. Further, shares of Common Stock tendered to the Company by a Participant to exercise an Award shall be added to the number of shares of Common Stock available for the grant of Awards under the Plan. However, in the case of Incentive Stock Options (as hereinafter defined), the foregoing provisions shall be subject to any limitations under the Code. Shares issued under the Plan may consist in whole or in part of authorized but unissued shares or treasury shares.

(b) Substitute Awards. In connection with a merger or consolidation of an entity with the Company or the acquisition by the Company of property or stock of an entity, the Board may grant Awards in substitution for any options or other stock or stock-based awards granted by such entity or an affiliate thereof. Substitute Awards may be granted on such terms as the Board deems appropriate in the circumstances, notwithstanding any limitations on Awards contained in the Plan. Substitute Awards shall not count against the overall share limit set forth in Section 4(a), except as may be required by reason of Section 422 and related provisions of the Code.

5. Stock Options

(a) General. The Board may grant options to purchase Common Stock (each, an "Option") and determine the number of shares of Common Stock to be covered by each Option, the exercise price of each Option and the conditions and limitations applicable to the exercise of each Option, including conditions relating to applicable federal or state securities laws, as it considers necessary or advisable. An Option that is not intended to be an Incentive Stock Option (as hereinafter defined) shall be designated a "Nonstatutory Stock Option".

(b) Incentive Stock Options. An Option that the Board intends to be an "incentive stock option" as defined in Section 422 of the Code (an "Incentive Stock Option") shall only be granted to employees of Merrimack Pharmaceuticals, Inc., any of Merrimack Pharmaceuticals Inc.'s present or future parent or subsidiary corporations as defined in Sections 424(e) or (f) of the Code, and any other entities the employees of which are eligible to receive Incentive Stock Options under the Code, and shall be subject to and shall be construed consistently with the

requirements of Section 422 of the Code. The Company shall have no liability to a Participant, or any other party, if an Option (or any part thereof) that is intended to be an Incentive Stock Option is not an Incentive Stock Option or for any action taken by the Board, including without limitation the conversion of an Incentive Stock Option to a Nonstatutory Stock Option.

(c) Exercise Price. The Board shall establish the exercise price of each Option and specify the exercise price in the applicable option agreement. The exercise price shall be not less than 100% of the Fair Market Value (as defined below) on the date the Option is granted.

(d) Duration of Options. Each Option shall be exercisable at such times and subject to such terms and conditions as the Board may specify in the applicable option agreement.

(e) Exercise of Option. Options may be exercised by delivery to the Company of a written notice of exercise signed by the proper person or by any other form of notice (including electronic notice) approved by the Board together with payment in full as specified in Section 5(f) for the number of shares for which the Option is exercised. Shares of Common Stock subject to the Option will be delivered by the Company as soon as practicable following exercise.

(f) Payment Upon Exercise. Common Stock purchased upon the exercise of an Option granted under the Plan shall be paid for as follows:

(1) in cash or by check, payable to the order of the Company;

(2) when the Common Stock is registered under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), except as may otherwise be provided in the applicable option agreement, by (i) delivery of an irrevocable and unconditional undertaking by a creditworthy broker to deliver promptly to the Company sufficient funds to pay the exercise price and any required tax withholding or (ii) delivery by the Participant to the Company of a copy of irrevocable and unconditional instructions to a creditworthy broker to deliver promptly to the Company cash or a check sufficient to pay the exercise price and any required tax withholding;

(3) when the Common Stock is registered under the Exchange Act and to the extent provided for in the applicable option agreement or approved by the Board, in its sole discretion, by delivery (either by actual delivery or attestation) of shares of Common Stock owned by the Participant valued at their fair market value as determined by (or in a manner approved by) the Board ("Fair Market Value"), provided (i) such method of payment is then permitted under applicable law, (ii) such Common Stock, if acquired directly from the Company, was owned by the Participant for such minimum period of time, if any, as may be established by the Board in its discretion and (iii) such Common Stock is not subject to any repurchase, forfeiture, unfulfilled vesting or other similar requirements;

(4) to the extent permitted by applicable law and provided for in the applicable option agreement or approved by the Board, in its sole discretion, by (i) delivery of a promissory note of the Participant to the Company on terms determined by the Board, or (ii) payment of such other lawful consideration as the Board may determine; or

(5) by any combination of the above permitted forms of payment.

6. Restricted Stock; Restricted Stock Units

(a) General. The Board may grant Awards entitling recipients to acquire shares of Common Stock ("Restricted Stock"), subject to the right of the Company to repurchase all or part of such shares at their issue price or other stated or formula price (or to require forfeiture of such shares if issued at no cost) from the recipient in the event that conditions specified by the Board in the applicable Award are not satisfied prior to the end of the applicable restriction period or periods established by the Board for such Award. Instead of granting Awards for Restricted Stock, the Board may grant Awards entitling the recipient to receive shares of Common Stock or cash to be delivered at the time such Award vests ("Restricted Stock Units") (Restricted Stock and Restricted Stock Units are each referred to herein as a "Restricted Stock Award").

(b) Terms and Conditions for All Restricted Stock Awards. The Board shall determine the terms and conditions of a Restricted Stock Award, including the conditions for vesting and repurchase (or forfeiture) and the issue price, if any.

(c) Additional Provisions Relating to Restricted Stock.

(1) Dividends. Participants holding shares of Restricted Stock will be entitled to all ordinary cash dividends paid with respect to such shares, unless otherwise provided by the Board. Unless otherwise provided, by the Board, if any dividends or distributions are paid in shares, or consist of a dividend or distribution to holders of Common Stock other than an ordinary cash dividend, the shares, cash or other property will be subject to the same restrictions on transferability and forfeitability as the shares of Restricted Stock with respect to which they were paid.

(2) Stock Certificates. The Company may require that any stock certificates issued in respect of shares of Restricted Stock shall be deposited in escrow by the Participant, together with a stock power endorsed in blank, with the Company (or its designee). At the expiration of the applicable restriction periods, the Company (or such designee) shall deliver the certificates no longer subject to such restrictions to the Participant or if the Participant has died, to the beneficiary designated, in a manner determined by the Board, by a Participant to receive amounts due or exercise rights of the Participant in the event of the Participant's death (the "Designated Beneficiary"). In the absence of an effective designation by a Participant, "Designated Beneficiary" shall mean the Participant's estate.

7. Other Stock-Based Awards

Other Awards of shares of Common Stock, and other Awards that are valued in whole or in part by reference to, or are otherwise based on, shares of Common Stock or other property, may be granted hereunder to Participants ("Other Stock-Based Awards"), including without limitation stock appreciation

rights ("SARs") and Awards entitling recipients to receive shares of Common Stock to be delivered in the future. Such Other Stock-Based Awards shall also be available as a form of payment in the settlement of other Awards granted under the Plan or as payment in lieu of compensation to which a Participant is otherwise entitled. Other Stock-Based

Awards may be paid in shares of Common Stock or cash, as the Board shall determine. Subject to the provisions of the Plan, the Board shall determine the terms and conditions of each Other Stock-Based Award, including any purchase price applicable thereto.

8. Adjustments for Changes in Common Stock and Certain Other Events

(a) Changes in Capitalization. In the event of any stock split, reverse stock split, stock dividend, recapitalization, combination of shares, reclassification of shares, spin-off or other similar change in capitalization or event, or any dividend or distribution to holders of Common Stock other than an ordinary cash dividend, (i) the number and class of securities available under this Plan, (ii) the number and class of securities and exercise price per share of each outstanding Option, (iii) the number of shares subject to and the repurchase price per share subject to each outstanding Restricted Stock Award, and (iv) the terms of each other outstanding Award shall be equitably adjusted by the Company (or substituted Awards may be made, if applicable) in the manner determined by the Board. Without limiting the generality of the foregoing, in the event the Company effects a split of the Common Stock by means of a stock dividend and the exercise price of and the number of shares subject to an outstanding Option are adjusted as of the date of the distribution of the dividend (rather than as of the record date for such dividend), then an optionee who exercises an Option between the record date and the distribution date for such stock dividend shall be entitled to receive, on the distribution date, the stock dividend with respect to the shares of Common Stock acquired upon such Option exercise, notwithstanding the fact that such shares were not outstanding as of the close of business on the record date for such stock dividend.

(b) Reorganization Events.

(1) Definition. A "Reorganization Event" shall mean: (i) any merger or consolidation of the Company with or into another entity as a result of which all of the Common Stock of the Company is converted into or exchanged for the right to receive cash, securities or other property or is cancelled, (ii) any exchange of all of the Common Stock of the Company for cash, securities or other property pursuant to a share exchange transaction or (iii) any liquidation or dissolution of the Company.

(2) Consequences of a Reorganization Event on Awards Other than Restricted Stock Awards. In connection with a Reorganization Event, the Board may take any one or more of the following actions as to all or any (or any portion of) outstanding Awards other than Restricted Stock Awards on such terms as the Board determines: (i) provide that Awards shall be assumed, or substantially equivalent Awards shall be substituted, by the acquiring or succeeding corporation (or an affiliate thereof), (ii) upon written notice to a Participant, provide that the Participant's unexercised Awards will terminate immediately prior to the consummation of such Reorganization Event unless exercised by the Participant within a specified period following the date of such notice, (iii) provide that outstanding Awards shall become exercisable, realizable, or deliverable, or restrictions applicable to an Award shall lapse, in whole or in part prior to or upon such Reorganization Event, (iv) in the event of a Reorganization Event under the terms of which holders of Common Stock will receive upon consummation thereof a cash payment for each share surrendered in the Reorganization Event (the "Acquisition Price"), make or provide for a cash payment to a Participant equal to the excess, if any, of (A) the Acquisition

Price times the number of shares of Common Stock subject to the Participant's Awards (to the extent the exercise price does not exceed the Acquisition Price) over (B) the aggregate exercise price of all such outstanding Awards and any applicable tax withholdings, in exchange for the termination of such Awards, (v) provide that, in connection with a liquidation or dissolution of the Company, Awards shall convert into the right to receive liquidation proceeds (if applicable, net of the exercise price thereof and any applicable tax withholdings) and (vi) any combination of the foregoing. In taking any of the actions permitted under this Section 8(b), the Board shall not be obligated by the Plan to treat all Awards, all Awards held by a Participant, or all Awards of the same type, identically.

For purposes of clause (i) above, an Option shall be considered assumed if, following consummation of the Reorganization Event, the Option confers the right to purchase, for each share of Common Stock subject to the Option immediately prior to the consummation of the Reorganization Event, the consideration (whether cash, securities or other property) received as a result of the Reorganization Event by holders of Common Stock for each share of Common Stock held immediately prior to the consummation of the Reorganization Event (and if holders were offered a choice of consideration, the type of consideration chosen by the holders of a majority of the outstanding shares of Common Stock); provided, however, that if the consideration received as a result of the Reorganization Event is not solely common stock of the acquiring or succeeding corporation (or an affiliate thereof), the Company may, with the consent of the acquiring or succeeding corporation, provide for the consideration to be received upon the exercise of Options to consist solely of common stock of the acquiring or succeeding corporation (or an affiliate thereof) equivalent in value (as determined by the Board) to the per share consideration received by holders of outstanding shares of Common Stock as a result of the Reorganization Event.

(3) Consequences of a Reorganization Event on Restricted Stock Awards. Upon the occurrence of a Reorganization Event other than a liquidation or dissolution of the Company, the repurchase and other rights of the Company under each outstanding Restricted Stock Award shall inure to the benefit of the Company's successor and shall, unless the Board determines otherwise, apply to the cash, securities or other property which the Common Stock was converted into or exchanged for pursuant to such Reorganization Event in the same manner and to the same extent as they applied to the Common Stock subject to such Restricted Stock Award. Upon the occurrence of a Reorganization Event involving the liquidation or dissolution of the Company, except to the extent specifically provided to the contrary in the instrument evidencing any Restricted Stock Award or any other agreement between a Participant and the Company, all restrictions and conditions on all Restricted Stock Awards then outstanding shall automatically be deemed terminated or satisfied.

9. General Provisions Applicable to Awards

(a) Transferability of Awards. Except as the Board may otherwise determine or provide in an Award, Awards shall not be sold, assigned, transferred, pledged or otherwise encumbered by the person to whom they are granted, either voluntarily or by operation of law, except by will or the laws of descent and distribution or, other than in the case of an Incentive Stock Option, pursuant to a qualified domestic relations order, and, during the life of the

Participant, shall be exercisable only by the Participant. References to a Participant, to the extent relevant in the context, shall include references to authorized transferees.

(b) Documentation. Each Award shall be evidenced in such form (written, electronic or otherwise) as the Board shall determine. Each Award may contain terms and conditions in addition to those set forth in the Plan.

(c) Board Discretion. Except as otherwise provided by the Plan, each Award may be made alone or in addition or in relation to any other Award. The terms of each Award need not be identical, and the Board need not treat Participants uniformly.

(d) Termination of Status. The Board shall determine the effect on an Award of the disability, death, termination or other cessation of employment, authorized leave of absence or other change in the employment or other status of a Participant and the extent to which, and the period during which, the Participant, or the Participant's legal representative, conservator, guardian or Designated Beneficiary, may exercise rights under the Award.

(e) Withholding. The Participant must satisfy all applicable federal, state, and local or other income and employment tax withholding obligations before the Company will deliver stock certificates or otherwise recognize ownership of Common Stock under an Award. The Company may decide to satisfy the withholding obligations through additional withholding on salary or wages. If the Company elects not to or cannot withhold from other compensation, the Participant must pay the Company the full amount, if any, required for withholding or have a broker tender to the Company cash equal to the withholding obligations. Payment of withholding obligations is due before the Company will issue any shares on exercise or release from forfeiture of an Award or, if the Company so requires, at the same time as is payment of the exercise price unless the Company determines otherwise. If provided for in an Award or approved by the Board in its sole discretion, a Participant may satisfy such tax obligations in whole or in part by delivery of shares of Common Stock, including shares retained from the Award creating the tax obligation, valued at their Fair Market Value; provided, however, except as otherwise provided by the Board, that the total tax withholding where stock is being used to satisfy such tax obligations cannot exceed the Company's minimum statutory withholding obligations (based on minimum statutory withholding rates for federal and state tax purposes, including payroll taxes, that are applicable to such supplemental taxable income). Shares surrendered to satisfy tax withholding requirements cannot be subject to any repurchase, forfeiture, unfulfilled vesting or other similar requirements.

(f) Amendment of Award.

(1) The Board may amend, modify or terminate any outstanding Award, including but not limited to, substituting therefor another Award of the same or a different type, changing the date of exercise or realization, and converting an Incentive Stock Option to a Nonstatutory Stock Option. The Participant's consent to such action shall be required unless (i) the Board determines that the action, taking into account any related action, would not materially and adversely affect the Participant's rights under the Plan or (ii) the change is permitted under Section 8 hereof.

(2) The Board may, without stockholder approval, amend any outstanding Award granted under the Plan to provide an exercise price per share that is lower than the then-current exercise price per share of such outstanding Award. The Board may also, without stockholder approval, cancel any outstanding award (whether or not granted under the Plan) and grant in substitution therefor new Awards under the Plan covering the same or a different number of shares of Common Stock and having an exercise price per share lower than the then-current exercise price per share of the cancelled award.

(g) Conditions on Delivery of Stock. The Company will not be obligated to deliver any shares of Common Stock pursuant to the Plan or to remove restrictions from shares previously delivered under the Plan until (i) all conditions of the Award have been met or removed to the satisfaction of the Company, (ii) in the opinion of the Company's counsel, all other legal matters in connection with the issuance and delivery of such shares have been satisfied, including any applicable securities laws and any applicable stock exchange or stock market rules and regulations, and (iii) the Participant has executed and delivered to the Company such representations or agreements as the Company may consider appropriate to satisfy the requirements of any applicable laws, rules or regulations.

(h) Acceleration. The Board may at any time provide that any Award shall become immediately exercisable in full or in part, free of some or all restrictions or conditions, or otherwise realizable in full or in part, as the case may be.

10. Miscellaneous

(a) No Right To Employment or Other Status. No person shall have any claim or right to be granted an Award, and the grant of an Award shall not be construed as giving a Participant the right to continued employment or any other relationship with the Company. The Company expressly reserves the right at any time to dismiss or otherwise terminate its relationship with a Participant free from any liability or claim under the Plan, except as expressly provided in the applicable Award.

(b) No Rights As Stockholder. Subject to the provisions of the applicable Award, no Participant or Designated Beneficiary shall have any rights as a stockholder with respect to any shares of Common Stock to be distributed with respect to an Award until becoming the record holder of such shares.

(c) Effective Date and Term of Plan. The Plan shall become effective on the date on which it is adopted by the Board. No Awards shall be granted under the Plan after the expiration of 10 years from the earlier of (i) the date on which the Plan was adopted by the Board or (ii) the date the Plan was approved by the Company's stockholders, but Awards previously granted may extend beyond that date.

(d) Amendment of Plan. The Board may amend, suspend or terminate the Plan or any portion thereof at any time; provided that if at any time the approval of the Company's stockholders is required as to any modification or amendment under Section 422 of the Code or any successor provision with respect to Incentive Stock Options, the Board may not effect such modification or amendment without such approval. Unless otherwise specified in the

amendment, any amendment to the Plan adopted in accordance with this Section 10(d) shall apply to, and be binding on the holders of, all Awards outstanding under the Plan at the time the amendment is adopted, provided the Board determines that such amendment does not materially and adversely affect the rights of Participants under the Plan.

(e) Authorization of Sub-Plans. The Board may from time to time establish one or more sub-plans under the Plan for purposes of satisfying applicable blue sky, securities or tax laws of various jurisdictions. The Board shall establish such sub-plans by adopting supplements to this Plan containing (i) such limitations on the Board's discretion under the Plan as the Board deems necessary or desirable or (ii) such additional terms and conditions not otherwise inconsistent with the Plan as the Board shall deem necessary or desirable. All supplements adopted by the Board shall be deemed to be part of the Plan, but each supplement shall apply only to Participants within the affected jurisdiction and the Company shall not be required to provide copies of any supplement to Participants in any jurisdiction which is not the subject of such supplement.

(f) Compliance with Code Section 409A. No Award shall provide for deferral of compensation that does not comply with Section 409A of the Code, unless the Board, at the time of grant, specifically provides that the Award is not intended to comply with Section 409A of the Code. The Company shall have no liability to a Participant, or any other party, if an Award that is intended to be exempt from, or compliant with, Section 409A is not so exempt or compliant or for any action taken by the Board.

(g) Governing Law. The provisions of the Plan and all Awards made hereunder shall be governed by and interpreted in accordance with the laws of the Commonwealth of Massachusetts, excluding choice-of-law principles of the law of such state that would require the application of the laws of a jurisdiction other than such state.

EXHIBIT 1, SHEET 1
Building No. 600/700, One Kendall Square
Cambridge, Massachusetts
(the "Building")

Execution Date: May 12, 2006

Tenant: Merrimack Pharmaceuticals, Inc.
(name)

a Massachusetts corporation
(description of business organization)

101 Binney Street. Cambridge, Massachusetts 02142
(principal place of business mailing address)

Landlord: RB Kendall Fee, LLC, a Delaware limited liability company. Mailing address: c/o The Beal Companies, LLP, 177 Milk Street, Boston, Massachusetts 02109-3410

Building: Building No. 600/700 in One Kendall Square in the City of Cambridge, Middlesex County, Commonwealth of Massachusetts.

Art. 2 Premises:

Lab/Office Premises: Two (2) areas on the second (2nd) floor of the Building, substantially as shown on Lease Plan. Exhibit 2, Sheet 1, consisting of:

Office Premises: 7,747 square feet
Laboratory Premises: 24,000 square feet

Basement Premises: An area in the basement of the Building ("Basement Premises"), substantially, as shown on Lease Plan, Exhibit 2, Sheet 2. Except as expressly stated in the Lease, the Lab/Office Premises and the Basement Premises are referred to collectively in this Lease as the "premises".

Except as expressly set forth in this Lease, the Office Premises, the Laboratory Premises and the Basement Premises shall hereinafter be referred to as the "premises".

Art. 3.1 Term Commencement Date: The date this Lease is executed by both Tenant and Landlord and delivered to Landlord

Art. 3.2 Termination Date: August 31, 2011

Art. 4.3 Final Plans Date: Not applicable

Art. 5 Permitted Use of Premises:

Lab/Office Premises

General business offices, laboratory use (including, without limitation, animal laboratory use, and ancillary uses thereto subject to Article 29.11 of the Lease)

Basement Premises

Operation of the Ph Neutralization system located in the Basement Premises

Art. 6 Yearly Rent:

Office Premises

Rent Commencement Date in respect of Office Premises:

The earlier of: (x) the date that Tenant commences to use the Office Premises or any portion thereof for the use set forth in Article 5 above, or (y) subject to Article 4.1 of the Lease, September 1, 2006 ("Outside Rent Commencement Date in respect of the Office Premises")

Time Period	Yearly Rent	Monthly Payment
Term Commencement Date - August 31, 2006:	$ -0-	$ -0-
September 1, 2006 - August 31, 2009:	$ 108,458.04	$ 9,038.17

September 1, 2009 - August 31, 2011:	$ 123,952.08	$ 10,329.34

Laboratory Premises

Rent Commencement Date in respect of Laboratory Premises:

The earlier of: (x) the date that Tenant commences to use the Laboratory Premises or any portion thereof for the use set forth in Article 5 above, or (y) subject to Article 4.1 of the Lease, September 1, 2006 ("Outside Rent Commencement Date in respect of the Laboratory Premises")

Time Period	Yearly Rent	Monthly Payment
Term Commencement Date - August 31, 2006:	$ -0-	$ -0-
September 1, 2006 - August 31, 2007:	$ 1,042,955.88	$ 86,912.99
September 1, 2007 - August 31, 2008:	$ 996,000.00	$ 83,000.00
September 1, 2008 - August 31, 2009:	$ 1,020,000.00	$ 85,000.00
September 1,2009 - August 31, 2010:	$ 1,044,000.00	$ 87,000.00
September 1,2010 August 31, 2011:	$ 1,080,000.00	$ 90,000.00

Art. 7 Total Rentable Area:

Laboratory:	24,000 square feet
Office:	7,747 square feet
TOTAL:	31,747 square feet
Basement Premises:	132 square feet

Total Rentable Area of Building No. 600/700: 225,438 square feet

Total Rentable Area of Complex: 650,681 square feet

Art. 8 Electric current will not be furnished by Landlord to Tenant.

Art. 9 Operating and Taxes in respect of Lab/Office Premises only:

Tenant's Proportionate Shares:

Common Area Share:	
Laboratory:	3.69%
Office:	1.19%
Total:	4.88%
Building Share:	
Laboratory:	10.64%
Office:	3.44%
	14.08%

In addition to Tenant's obligations under Article 9.2 of the Lease, Tenant shall on September 1, 2006, pay to Landlord a one-time payment in the amount of $9,640.00 in order to compensate Landlord for Tenant's Tax Share in respect of the Laboratory Premises for the month of August, 2006.

Art. 29.3 Brokers: Meredith & Grew and Lincoln Property Company

Art. 29.5 Arbitration: Massachusetts; Superior Court

Exhibit Dates: Lease Plan. Exhibit 2, dated May 12, 2006

Art. 29.13 Security Deposit: $378,220.00, in the form of a Letter of Credit, subject to reduction in accordance with Article 29.13

LANDLORD:

RB KENDALL FEE, LLC,

TENANT:

MERRIMACK

a Delaware limited liability company

By: RWB Kendall Square I, LLC,
a Delaware limited liability company
its Sole Member

By: RB Kendall, LLC,
a Delaware limited liability company,
its Sole Member

By: Beal Kendall LLC,
a Massachusetts limited liability
company, as Manager

By: /s/ Robert L. Beal
Name: Robert L. Beal
Title: Manager

Date Signed: 5/16/06

PHARMACEUTICALS,
INC.

By: /s/ Robert J. Mulroy
Name: Robert J. Mulroy
Title: President & CEO
Hereunto duly authorized

Date Signed: 5/15/06

EXHIBITS

THIS INDENTURE OF LEASE ("the Lease" or "this Lease") made and entered into on the Execution Date as stated in Exhibit 1 and between the Landlord and the Tenant named in Exhibit 1.

Landlord does hereby demise and lease to Tenant, and Tenant does hereby hire and take from Landlord, the premises hereinafter mentioned and described (hereinafter referred to as "premises"), upon and subject to the covenants, agreements, terms, provisions and conditions of this Lease for the term hereinafter stated:

1. REFERENCE DATA

Each reference in this Lease to any of the terms and titles contained in any Exhibit attached to this Lease shall be deemed and construed to incorporate the data stated under that term or title in such Exhibit.

2. DESCRIPTION OF DEMISED PREMISES

2.1 Demised Premises. The premises are that portion of the Building as described in Exhibit 1 (as the same may from time to time be constituted after changes therein, additions thereto and eliminations therefrom pursuant to rights of Landlord hereinafter reserved) and is hereinafter referred to as "Building". The premises are substantially as shown hatched or outlined on the Lease Plan (Exhibit 2) hereto attached and incorporated by reference as a part hereof.

2.2 Appurtenant Rights. Tenant shall have, as appurtenant to the premises, rights to use in common, with others entitled thereto, subject to reasonable rules from time to time made by Landlord of which Tenant is given notice; (a) the common lobbies, hallways, stairways and elevators of the Building, serving the premises in common with others, (b) common walkways necessary for access to the Building, and (c) if the premises include less than the entire rentable area of any floor, the common toilets and other common facilities of such floor; and no other appurtenant rights or easements. In addition, Tenant shall have, as appurtenant to the premises, the rights set forth in Articles 29.17, 29.18, and 29.19. Notwithstanding anything to the contrary herein or in the Lease contained, Landlord has no obligation to allow any particular telecommunication service provider to have access to the Building or to Tenant's premises. If Landlord permits such access, Landlord may condition such access upon the payment to Landlord by the service provider of fees assessed by Landlord in its sole discretion.

2.3 Exclusions and Reservations. (a) All the perimeter walls of the premises except the inner surfaces thereof, any balconies (except to the extent same are shown as part of the premises on the Lease Plan (Exhibit 2)), terraces or roofs adjacent to the premises, and any space in or adjacent to the

premises used for shafts, stacks, pipes, conduits, wires and appurtenant fixtures, fan rooms, ducts, electric or other utilities, sinks or other Building facilities, and the use thereof, as well as the right of access through the premises for the purposes of operation, maintenance, decoration and repair, are expressly excluded from the premises and reserved to Landlord.

(b) In exercising any right which Landlord has to access the premises, Landlord and Landlord's agents, employees, or contractors shall use reasonable efforts to minimize any interference with Tenant's use and enjoyment of the premises arising from any entry into the premises by Landlord. Except in emergency situations, in no event shall Landlord, or its representatives or contractors, enter any secure areas designated by Tenant in writing to Landlord, unless Landlord (or its representatives or contractors, as the case may be) are accompanied by a representative of Tenant.

3. TERM OF LEASE

3.1 Definitions. As used in this Lease the words and terms which follow mean and include the following:

(a) "Portion of the Premises" - The Office Premises and the Lab Premises are each referred to herein as "Portion of the Premises"

(b) The "Term Commencement Date" is the date set forth in Exhibit 1.

(c) The "Rent Commencement Date" - The Rent Commencement Date in respect of each Portion of the Premises is set forth on Exhibit 1.

(d) "Complex" shall be defined as all of the Building, the other buildings, and the Common Areas serving such buildings, all located on the land ("Land") shown outlined on Exhibit 3.

(e) "Common Areas" shall be defined as the common walkways, access ways, and parking facilities located on the Land, as the same may be changed, from time to time.

(f) Whenever the phrase "manner of use" is used in the Lease, it shall be deemed to refer to the acts or omissions of Tenant (or anyone claiming by, through, or under Tenant) in implementing Tenant's Permitted Use of the premises, as opposed to the nature of the Permitted Use itself. For example, and without limiting the foregoing, Article 5.2 (where Tenant, among other things, agrees that Tenant will not injure other tenants of the Building) states:

> "Landlord acknowledges that the use of the premises for the Permitted Use stated in Exhibit 1 (as opposed to the manner of use of the premises by Tenant, even if such manner of use is a Permitted Use) will not breach the provisions of the preceding sentence."

This sentence shall be interpreted to mean (with respect to Tenant's covenant not to injure other tenants of the Building) that the use of the premises for laboratory and general business office purposes shall not be precluded by the provisions of Article 5.2, but that Tenant in using the premises for laboratory and general business purposes, Tenant shall not injure other tenants of the Building.

3.2 Habendum. TO HAVE AND TO HOLD the premises for a term of years commencing on the Term Commencement Date and ending on the Termination Date as stated in Exhibit 1 or on such earlier date upon which said term may expire or be terminated pursuant to any of the conditions of limitation or other provisions of this Lease or pursuant to law, subject to extension in accordance with Article 29.14 below (which date for the termination of the term hereof will hereafter be called "Termination Date"). Notwithstanding the foregoing, if the Termination Date as stated in Exhibit 1 shall fall on other than the last day of a calendar month, said Termination Date shall, at the option of Landlord, be deemed to be the last day of the calendar month in which said Termination Date occurs.

3.3 Declaration Fixing Term Commencement Date. As soon as may be after the execution date hereof, each of the parties hereto agrees, upon demand of the other party to join in the execution, in recordable form, of a statutory notice, memorandum, etc. of lease and/or written declaration in which shall be stated the Term Commencement Date, a description of the premises, a description of the RFO Premises, pursuant to Article 29.16 below, and the Termination Date, including Tenant's option to extend the term of the Lease, as set forth in Article 29.14 below. If this Lease is terminated before the term expires, then upon Landlord's request the parties shall execute, deliver and record an instrument acknowledging such fact and the date of termination of this Lease, and Tenant hereby appoints Landlord its attorney-in-fact in its name and behalf to execute such instrument if Tenant shall wrongfully fail to execute and deliver such instrument after Landlord's request therefor within ten (10) days.

4. CONDITION OF PREMISES; LANDLORD'S CONTRIBUTION;

4.1 **Condition of Premises** (a) Lab/Office Premises. Notwithstanding anything to the contrary herein contained, except as set forth in this Article 4.1, Tenant shall take the Lab/Office Premises "as-is", in the condition in which the Lab/Office Premises are in as of the Term Commencement Date, without any obligation on the part of Landlord to prepare or construct the Lab/Office Premises for Tenant's occupancy and without any warranty or representation by Landlord as to the condition of the Lab/Office Premises or the Building. Notwithstanding the foregoing:

(1) Landlord shall deliver the entire premises (including, without limitation, the mechanical room) to Tenant on the Term Commencement Date in broom-clean condition, free of all personal property and debris, including, without limitation, all existing furniture and equipment located in the Lab/Office Premises as of the Execution Date; and

(2) Landlord hereby represents to Tenant that the premises have been decommissioned as described in Exhibit 11.

(3) To the extent that the parties mutually determine that there is a problem with snow intake at the sidewall louver entering AH-1, Landlord shall, at no cost to Tenant, eliminate such problem in a manner which is mutually satisfactory to both parties.

(4) Landlord hereby represents to Tenant that, as of the Execution Date of this Lease, the systems serving the premises ("Premises Systems") are in good working order. Tenant shall have the right, prior to the commencement of any Tenant's Work, as defined in Article 4.2, to determine whether the Premises Systems are, in fact, in good operating order. If Tenant believes that the Systems are not in good working.order, then Tenant may give Landlord written notice ("Defect Notice") prior to the time that Tenant commences Tenant's Work. The Defect Notice shall set forth, with specificity, the manner in which the Systems are in violation of Landlord's representation under this Article 4.1(a)(4). If Tenant fails to give a Defect Notice prior to the time that Tenant commences Tenant's Work, or if Tenant does not give Landlord a reasonable opportunity (at least three (3) business days) to investigate the claims set forth in the Defect Notice prior to the commencement of Tenant's Work, then Tenant shall conclusively be deemed to have agreed that the Premises Systems were in good working order as of the Execution Date. If Landlord agrees that the Premises Systems are not in good working order, Landlord shall, at no cost to Tenant, perform any work necessary to place the Premises Systems in good working order. Landlord shall have the right, which right shall be exercisable by written notice to Tenant given on or before the date seven (7) days after Landlord receives the Defect Notice, to object to the Defect Notice. Any dispute under this Article 4.1(a)(4) may be submitted to arbitration in accordance with the provisions of Article 29.5. If it is either agreed by the parties, or determined by the arbitrator, that the Premises Systems were not in good working order as of the Execution Date, then Landlord shall, promptly after such agreement or determination, perform any work necessary to place the Premises Systems in good working order. The provisions of this Article 4.1(a)(4) set forth Tenant's sole rights and remedies in the event of any breach by Landlord of its representations and obligations under this Article 4.1(a)(4). Nothing herein shall relieve Landlord from its maintenance and repair obligations pursuant to Article 8.5 of the Lease.

(b) Basement Premises: Notwithstanding anything to the contrary herein contained, Tenant shall take the Basement Premises "as-is", in the condition in which the Basement Premises are in as of the Term Commencement Date, without any obligation on the part of Landlord to prepare or construct the Basement Premises for Tenant's occupancy and without any warranty or representation by Landlord as to the condition of the Basement Premises. Tenant shall have the right to use the Ph Neutralization system located in the Basement Premises throughout the term of the Lease. Tenant acknowledges that Landlord makes no representation or warranty to Tenant as to the condition of such system. Tenant shall, throughout the term of the Lease, maintain such system in the condition in which such system is in as of the Term Commencement Date, reasonable wear and tear and fire and other casualty excepted.

4.2 Landlord's Contribution and Tenant's Work. A. Landlord shall, in the manner hereinafter set forth, contribute up to Six Hundred Sixty Thousand Three Hundred Thirty-Seven and 60/100 ($660,337.60) Dollars ("Landlord's Contribution") towards the cost of leasehold improvements to be installed by Tenant in the premises ("Tenant's Work"). For these purposes, the cost of Tenant's Work shall include, without limitation, (i) the total cost for work, materials, supplies, overhead, general conditions, computer wiring and cabling and alterations to the premises; (ii) architectural and engineering fees; and (iii) the Construction Management Fee (as defined below). Tenant's Work shall be performed in accordance with Articles 12 and 13 of the Lease. Tenant may apply up to One Hundred Fifty-Eight Thousand Seven Hundred Thirty-Five and 00/100 ($158,735.00) of Landlord's Contribution toward architectural and engineering fees incurred by Tenant in the preparation of Tenant's plans for, or in carrying out, Tenant's Work.

B. Provided that Tenant is not in default of its obligations under the Lease at the time that Tenant requests any requisition on account of Landlord's Contribution, Landlord shall pay the cost of the work shown on each requisition (as hereinafter defined) submitted by Tenant to Landlord within thirty (30) days of submission thereof by Tenant to Landlord. Notwithstanding the foregoing, if Landlord refuses to pay any portion of Landlord's Contribution based upon a default of Tenant, then Tenant shall have the right to resubmit its request for payment of such portion of Landlord's Contribution (and Landlord shall make payment to Tenant on account of such resubmission, in accordance with the provisions of this Article 4.2) on the conditions that: (i) Tenant has cured such default, (ii) Tenant is then in full compliance with its obligations under the Lease, and (iii) the Lease is then in full force and effect. For the purposes hereof, a "requisition" shall mean written documentation showing in reasonable detail the costs of the improvements then installed by Tenant in the premises. Each requisition shall be accompanied by evidence reasonably satisfactory to Landlord that all work covered by previous requisitions has been fully paid by Tenant. Landlord shall have the right, upon reasonable advance notice to Tenant, to inspect Tenant's books and records relating to each requisition in order to verify the amount thereof. Tenant shall submit requisition(s) no more often than monthly.

C. Notwithstanding anything to the contrary herein contained:

(i) Landlord shall have no obligation to advance funds on account of Landlord's Contribution unless and until Landlord has received the requisition in question, together with certifications from Tenant's architect, certifying that the work shown on the requisition has been performed in accordance with applicable law and in accordance with Tenant's approved plans.

(ii) Except with respect to work and/or materials previously paid for by Tenant, as evidenced by paid invoices provided to Landlord, Landlord shall have the right to have Landlord's Contribution paid to both Tenant and Tenant's contractor(s) and vendor(s) jointly, or directly to Tenant's contractor if Landlord has reason to believe there are or may be outstanding claims by such contractor(s) or vendor(s).

(iii) Landlord shall have no obligation to pay Landlord's Contribution in respect of any requisition submitted after August 31, 2007.

(iv) Tenant shall be entitled to a credit against Yearly Rent equal to fifty percent (50%) of any unused portion of Landlord's Contribution.

D. Except for Landlord's Contribution, Tenant shall bear all other costs of Tenant's Work. Landlord shall have no liability or responsibility for any claim, injury or damage alleged to have been caused by the particular materials, whether building standard or non-building standard, selected by Tenant in connection with Tenant's Work.

E. Landlord shall be entitled to deduct from Landlord's Contribution a construction management fee for Landlord's oversight of Tenant's Work. The construction management fee shall be recorded by an hourly billable rate of $90.00 ("Construction Management Fee") for any construction management employee whose compensation is not already being charged as an Operating Cost of the Building or Complex. The first (1st) ten (10) hours of the Construction Management Fee in the amount of $900.00 shall be at no charge to Tenant.

F. If Landlord fails timely to pay any amount properly due to Tenant on account of Landlord's Contribution, and Landlord fails to cure such failure within ten (10) business days of written notice from Tenant, then Tenant shall have the right to deduct such amounts from the next installment(s) of Yearly Rent and other charges due under the Lease.

4.3 Tenant Payments of Construction Cost. Landlord shall have the same rights and remedies which Landlord has upon the nonpayment of Yearly Rent and other charges due under this Lease for nonpayment of any amounts which Tenant is required to pay to Landlord or Landlord's contractor in connection with any construction in the premises performed for Tenant by Landlord, Landlord's contractor or any other person, firm or entity after the Term Commencement Date, subject to Tenant's right to contest the same in good faith.

5. USE OF PREMISES

5.1 Permitted Use. Tenant may, during the term hereof, occupy and use the premises only for the purposes as stated in Exhibit 1 and for no other purposes. Service and utility areas (whether or not a part of the premises) shall be used only for the particular purpose for which they were designed.

5.2 Prohibited Uses. Notwithstanding any other provision of this Lease, Tenant shall not use, or suffer or permit the use or occupancy of, or suffer or permit anything to be done in or anything to be brought into or kept in or about the premises or the Building or any part thereof (including, without limitation, any materials appliances or equipment used in the construction or other preparation of the premises and furniture and carpeting): (i) which would violate any of the covenants, agreements, terms, provisions and conditions of this Lease; (ii) for any unlawful purposes or in any unlawful manner; (iii) which, in the reasonable judgment of Landlord shall in any way (a) impair the appearance or reputation of the Building; or (b) impair, interfere with or otherwise diminish the quality of any of the Building services or the proper and economic heating, cleaning, ventilating, air conditioning or other servicing of the Building; or premises, or with the use or occupancy of any of the other areas of the Building, or occasion discomfort, inconvenience or annoyance, or injury or damage to any occupants of the premises or other tenants or occupants of the Building; or (iv) which is inconsistent with the maintenance of the Building as an office and laboratory building of the first class in the quality of its maintenance, use, or occupancy. Landlord acknowledges that the use of the premises for the Permitted Use stated in Exhibit 1 (as opposed to the manner of use of the premises by Tenant, even if such manner of use is a Permitted Use) will not breach the provisions of the preceding sentence. Tenant shall not install or use any electrical or other equipment of any kind which, in the reasonable judgment of Landlord, might cause any such impairment, interference, discomfort, inconvenience, annoyance or injury.

5.3 Licenses and Permits. If any governmental license or permit shall be required for the proper and lawful conduct of Tenant's business, and if the failure to secure such license or permit would in any way affect Landlord, the premises, the Building or Tenant's ability to perform any of its obligations under this Lease, Tenant, at Tenant's expense, shall duly procure and thereafter maintain such license and submit the same to inspection by Landlord. Tenant, at Tenant's expense, shall at all times comply with the terms and conditions of each such license or permit. Tenant shall furnish all data and information to governmental authorities and Landlord as required in accordance with legal, regulatory, licensing or other similar requirements as they relate to Tenant's use or occupancy of the premises or the Building.

6. RENT

During the term of this Lease the Yearly Rent and other charges, at the rate stated in Exhibit 1, shall be payable by Tenant to Landlord by monthly payments, as stated in Exhibit 1, in advance and without demand on the first day of each month for and in respect of such month. The rent and other charges reserved and covenanted to be paid under this Lease shall commence on the Rent Commencement Date. If, by reason of any provisions of this Lease, the rent reserved hereunder shall commence or terminate on any day other than the first day of a calendar month, the rent for such calendar month shall be prorated. The rent shall be payable to Landlord or, if Landlord shall so direct in writing, to Landlord's agent or nominee, in lawful money of the United States which shall be legal tender for payment of all debts and dues, public and private, at the time of payment, at the office of the Landlord or such place as Landlord may designate, and the rent and other charges in all circumstances shall be payable without any setoff or deduction whatsoever. Rental and any other sums due hereunder not paid on or before the date due shall bear interest from the due date until paid computed at the annual rate of five percentage points over the so-called prime rate then currently from time to time charged to its most favored corporate customers by the largest national bank (N.A.) located in the city in which the Building is located, or at any applicable lesser maximum legally permissible rate for debts of this nature.

7. RENTABLE AREA

The Total Rentable Area of the premises, the Building and the Complex are agreed to be the amounts set forth in Exhibit 1.

8. SERVICES FURNISHED BY LANDLORD

8.1 Electric Current.

(a) Commencing as of the Rent Commencement Date, and continuing thereafter throughout the term of this Lease, Landlord will require Tenant to contract with the company supplying electric current for the purchase and obtaining by Tenant of electric current directly from such company to be billed directly to, and paid for by, Tenant. During the period between the Term Commencement Date and the Rent Commencement Date, electric current will be provided to the premises without charge to Tenant. The premises are separately metered to measure the consumption of electricity for plugs, lights and heat pumps and other supplemental HVAC equipment providing HVAC services to the premises. Notwithstanding the foregoing, the electricity consumed by the electric light fixture in the Basement Premises is measured by the base building electric meter. Landlord shall provide electricity to such electric light fixture throughout the term of the Lease, and the cost of such electricity shall be included in Operating Costs.

(b) If Tenant shall require electric current for use in the premises in excess of such reasonable quantity to be furnished for such use as hereinabove provided and if (i) in Landlord's reasonable judgment, Landlord's facilities are inadequate for such excess requirements or (ii) such excess use shall result in an additional burden on the Building air conditioning system and additional cost to Landlord on account thereof then, as the case may be, (x) Landlord upon written request and at the sole cost and expense of Tenant, will furnish and install such additional wire, conduits, feeders, switchboards and appurtenances as reasonably may be required to supply such additional requirements of Tenant if current therefor be available to Landlord, provided that the same shall be permitted by applicable laws and insurance regulations and shall not cause damage to the Building or the premises or cause or create a dangerous or hazardous condition or entail excessive or unreasonable alterations or repairs or interfere with or disturb other tenants or occupants of the Building or (y) Tenant shall reimburse Landlord for such additional cost, as aforesaid.

(c) Landlord, at Tenant's expense and upon Tenant's request, shall purchase and install all replacement lamps of types generally commercially available (including, but not limited to, incandescent and fluorescent) used in the premises.

(d) Subject to Article 8.6, Landlord shall not in any way be liable or responsible to Tenant for any loss, damage or expense which Tenant may sustain or incur if the quantity, character, or supply of electrical energy is changed or is no longer available or suitable for Tenant's requirements.

(e) Tenant agrees that it will not make any material alteration or material addition to the electrical service equipment in the premises without the prior written consent of Landlord in each instance first obtained, which consent will not be unreasonably withheld, and will promptly advise Landlord of any other alteration or addition to such electrical service equipment.

8.2 Water. Landlord shall furnish hot and cold water for ordinary premises, cleaning, toilet, lavatory and drinking purposes. If Tenant requires, uses or consumes water for any purpose other than for the aforementioned purposes, Landlord may (i) assess a reasonable charge for the additional water so used or consumed by Tenant or (ii) install a water meter and thereby measure Tenant's water consumption for all purposes. In the latter event, Landlord shall pay the cost of the meter and the cost of installation thereof and shall keep said meter and installation equipment in good working order and repair. Tenant agrees to pay for water consumed, as shown on said meter, together with the sewer charge based on said meter charges, as and when bills are rendered, and on default in making such payment Landlord may pay such charges and collect the same from Tenant. All piping and other equipment and facilities for use of water outside the building core which exclusively benefit Tenant will be installed and maintained by Tenant at Tenant's sole cost and expense.

8.3 Elevators, Heat, Air Conditioning, and Cleaning.

(a) Landlord at its expense shall: (i) provide necessary elevator facilities (which may be manually or automatically operated, either or both, as Landlord may from time to time elect) on Mondays through Fridays,

excepting legal holidays, from 8:00 a.m. to 6:00 p.m. and on Saturdays, excepting legal holidays, from 8:00 a.m. to 1:00 p.m. (called "business days") and have one elevator in operation available for Tenant's use, non-exclusively, together with others having business in the Building, at all other times; (ii) furnish heat (substantially equivalent to that being furnished in comparable office and laboratory buildings in the same city) to the common areas during the normal heating season on business days; (iii) furnish to and distribute to the common areas air conditioning as normal seasonal changes may require on business days during the hours as aforesaid when air conditioning may reasonably be required for the comfortable occupancy of the common areas, (iv) furnish condenser water from the Building's common condenser water system to the heat pumps serving the premises, twenty-four hours per day, seven days per week throughout the term; and (v) cause the common areas of the Building to be cleaned on business days (i.e., Monday through Friday) in a manner consistent with cleaning standards generally prevailing in first-class office and laboratory buildings in the City of Cambridge.

(b) Access. So long as Tenant shall comply with Landlord's reasonable security program for the Building, Tenant shall have access to the premises and the Garage twenty-four (24) hours per day, seven (7) days per week, during the term of this Lease, except in an emergency.

(c) Tenant acknowledges and agrees that the heat pumps providing HVAC services to the premises shall be separately metered and Tenant shall be required to pay for the cost of all utilities used by such heat pumps during the term of the Lease.

8.4 Additional Air Conditioning Equipment. In the event Tenant requires additional air conditioning for business machines, meeting rooms or other special purposes, or because of occupancy or excess electrical loads, any additional air conditioning units, chillers, condensers, compressors, ducts, piping and other equipment, such additional air conditioning equipment will be installed, but only if, in Landlord's reasonable judgment, the same will not cause damage or injury to the Building or create a dangerous or hazardous condition or entail excessive or unreasonable alterations, repairs or expense or interfere with or disturb other tenants. At Landlord's sole election, such equipment will either be installed:

(a) by Landlord at Tenant's expense and Tenant shall reimburse Landlord in such an amount as will compensate it for the cost incurred by it in operating, maintaining, repairing and replacing, if necessary, such additional air conditioning equipment; or

(b) by Tenant, subject to Landlord's prior approval of Tenant's plans and specifications for such work. In such event: (i) such equipment shall be maintained, repaired and replaced by Tenant at Tenant's sole cost and expense, and (ii) throughout the term of this Lease, Tenant shall, at Tenant's sole cost and expense, purchase and maintain a service contract for such equipment from a service provider approved by Landlord. Tenant shall obtain Landlord's prior written approval of both the form of service contract and of the service provider.

8.5 Repairs. Except as otherwise provided in Articles 18 and 20, and subject to Tenant's related obligations in Article 14, Landlord shall keep and maintain the foundation, roof, exterior walls, structural floor slabs, columns, other structural elements, elevators, public stairways and corridors, public lavatories, equipment (including, without limitation, sanitary, electrical, heating, air conditioning, sprinkler, plumbing or other systems) and other common facilities of both the Building and the Common Areas ("Landlord Maintenance Areas") in good condition and repair. Landlord shall keep the paved portions of the Common Areas reasonably free of ice and snow. Subject to Articles 15.5 and 19, Landlord shall repair any damage to the premises caused by defects in the Landlord Maintenance Areas.

8.6 Interruption or Curtailment of Services. (a) When necessary by reason of accident or emergency, or for repairs, alterations, replacements or improvements which in the reasonable judgment of Landlord are desirable or necessary to be made, or of difficulty or inability in securing supplies or labor, or of strikes, or of any other cause beyond the reasonable control of Landlord, whether such other cause be similar or dissimilar to those hereinabove specifically mentioned until said cause has been removed, Landlord reserves the right to interrupt, curtail, stop or suspend (i) the furnishing of heating, elevator, air conditioning, and cleaning services and (ii) the operation of the plumbing and electric systems. Landlord shall exercise reasonable diligence to minimize and eliminate, as soon as reasonably possible, the cause of any such interruption, curtailment, stoppage or suspension,

but, except as set forth in Articles 8.6 and 15.6, there shall be no diminution or abatement of rent or other compensation due from Landlord to Tenant hereunder, nor shall this Lease be affected or any of the Tenant's obligations hereunder reduced, and the Landlord shall have no responsibility or liability for

any such interruption, curtailment, stoppage, or suspension of services or systems.

(b) Notwithstanding anything to the contrary in this Lease contained, if the premises shall lack any service which Landlord is required to provide hereunder (thereby rendering the premises or a portion thereof untenantable) (a "Service Interruption") so that, for the Landlord Service Interruption Cure Period, as hereinafter defined, the continued operation in the ordinary course of Tenant's business is materially adversely affected and if Tenant ceases to use the affected portion of the premises during the period of untenantability as the direct result of such lack of service, then, provided that Tenant ceases to use the affected portion of the premises during the entirety of the Landlord Service Interruption Cure Period and that such untenantability and Landlord's inability to cure such condition is not caused by the fault or neglect of Tenant or Tenant's agents, employees or contractors, Yearly Rent, Operating Expense Share and Tax Share shall thereafter be abated in proportion to such untenantability until the day such condition is completely corrected.

For the purposes hereof, the "Landlord Service Interruption Cure Period" shall be defined as five (5) consecutive business days after Landlord's receipt of written notice from Tenant of the condition causing untenantability in the premises, provided however, that the Landlord Service Interruption Cure Period shall be ten (10) consecutive business days after Landlord's receipt of written notice from Tenant of such condition causing untenantability in the premises if either the condition was caused by causes beyond Landlord's control or Landlord is unable to cure such condition as the result of causes beyond Landlord's control.

(c) The provisions of Paragraph b of this Article 8.6 shall not apply in the event of untenantability caused by fire or other casualty, or taking (see Articles 18 and 20). The remedies set forth in this Article 8.6 shall be Tenant's sole remedies in the event of a Service Interruption.

8.7 Energy Conservation. Notwithstanding anything to the contrary in this Article 8 or in this Lease contained, Landlord may institute, and Tenant shall comply with, such policies, programs and measures as may be necessary or required in order to comply with applicable governmental laws, ordinances, rules and regulations.

8.8 Gas in Respect of the Laboratory Premises.

Landlord will require Tenant to contract with the company supplying gas to the Laboratory Premises for the purchase and obtaining by Tenant of gas directly from such company to be billed directly to, and paid for by, Tenant.

8.9 Basement Premises. Landlord shall have no obligation to provide services to the Basement Premises, except for access (as provided in Article 8.3(b)), water (in accordance with Article 8.2), and electricity (in accordance with Article 8.1).

8.10 Miscellaneous. Other than air conditioning, all services provided by Landlord to Tenant are based upon an assumed maximum premises population of one person per two hundred (200) square feet of Total Rentable Area, which limit Tenant shall in no event exceed.

9. ESCALATION

9.1 Definitions. As used in this Article 9, the words and terms which follow mean and include the following:

(a) "Operating Year" shall mean a calendar year in which occurs any part of the term of this Lease.

(b) "Tenant's Proportionate Building Share" shall be the figure as stated in Exhibit 1. Tenant's Proportionate Building Share is the ratio of the Total Rentable Area of the Lab/Office Premises to the aggregate Total Rentable Area of the Building.

(c) "Tenant's Proportionate Common Area Share" shall initially be the figure as stated in Exhibit 1. Tenant's Proportionate Common Area Share is the ratio of the Total Rentable Area of the Lab/Office Premises to the aggregate Total Rentable Area, from time to time, of ail buildings within the Complex which have been completed and for which a certificate of occupancy has been issued. As additional buildings are completed within the Complex, Tenant's Proportionate Common Area Share shall be adjusted to equal the then current ratio of the Total Rentable Area of the Lab/Office Premises to the aggregate Total Rentable Area within the Complex which is then completed and as to which a certificate of occupancy is issued.

(d) "Taxes" shall mean the real estate taxes and other taxes, levies and assessments imposed upon the Building and the Common Areas of the Complex and upon any personal property of Landlord used in the operation thereof, or Landlord's interest in the Building, the Common Areas, or such personal property; charges, fees and assessments for transit, housing, police, fire or other governmental services or purported benefits to the Building and/or the Common Areas; service or user payments in lieu of taxes; and any and ail other taxes, levies, betterments, assessments and charges arising from the ownership, leasing, operating, use or occupancy of the Building, the Common Areas or based upon rentals derived therefrom, which are or shall be imposed by National, State, Municipal or other authorities. In the event that any betterment or other special assessments may, at the option of the taxpayer, be paid in installments over a period longer than one year, then the same shall be deemed paid in installments over the maximum period permitted by the taxing authority, and Tenant's obligation for any one tax fiscal year to pay its proportionate share of such assessments shall only apply to those installments that become actually due and payable (i.e., failing which payment the same would become delinquent), together with the interest charged thereon by the governmental authority, during that same fiscal tax year. "Taxes" shall not include any franchise, rental, income or profit tax, capital levy or excise, provided, however, that any of the same and any other governmental tax, excise, fee, levy, charge or assessment, however described, that may in the future be levied or assessed as a substitute for or an addition to, in whole or in part, any tax, levy or assessment which would otherwise constitute "Taxes," whether or not now customary or in the contemplation of the parties on the Execution Date of this Lease, shall constitute "Taxes," but only to the extent calculated as if the Complex is the only real estate owned by Landlord. "Taxes" shall also include expenses of tax abatement or other proceedings contesting assessments or levies. The parties acknowledge that, as of the Execution Date, Taxes are based upon several separate tax bills affecting the Complex. Taxes shall be allocated by Landlord, in Landlord's reasonable judgment, consistently applied among the Building (the portion of Taxes allocable to the Building being referred to herein as "Building Taxes"), the other buildings of the Complex, and the Common Areas (the portion of Taxes allocable to the Common Areas being referred to herein as "Common Area Taxes"). Taxes shall exclude interest or penalties arising from the late payment of Taxes, except to the extent the same arise from Tenant's late payment of Tax Share as required hereunder. Notwithstanding the foregoing, Taxes shall also exclude: (x) any Taxes attributable to the Garage, and (y) the entire increase in real estate taxes on the Building which are: (i) attributable to any alteration, addition or improvement made within the premises of another tenant or Tenant, (ii) which are solely for the benefit of such tenant or Tenant, (iii) which are in excess the level of improvement in the premises as of the Execution Date of this Lease, and (iv) only to the extent that it is determinable from the records of the assessing authority that such increase in Taxes is based solely upon such alteration, addition or improvement. Without limiting the foregoing, for any Tax Period in

which the assessing authority determines the assessed value of the Building and the land based upon an income approach, then the immediately preceding sentence shall not apply.

(e) "Tax Period" shall be any fiscal/tax period in respect of which Taxes are due and payable to the appropriate governmental taxing authority, any portion of which period occurs during the term of this Lease, the first such Period being the one in which the Rent Commencement Date occurs.

(f) "Operating Costs":

1. Definition of Operating Costs. "Operating Costs" shall mean all costs incurred and expenditures of whatever nature made by Landlord in the operation and management, for repair and replacements, cleaning and maintenance of the Building, the Complex, and the Common Areas of the Complex including,

without limitation, vehicular and pedestrian passageways that are a part of the Complex, related equipment, facilities and appurtenances, elevators, cooling and heating equipment. In the event that Landlord or Landlord's managers or agents perform services for the benefit of the Complex off-site which would otherwise be performed on-site (e.g., accounting), the cost of such services shall be reasonably allocated among the properties benefiting from such service and shall be included in Operating Costs. Operating Costs shall include, without limitation, those categories of "Specifically Included Operating Costs," as set forth below, but shall not include "Excluded Costs," as hereinafter defined.

2. Definition of Excluded Costs. "Excluded Costs" shall be defined as:

(i) mortgage charges,

(ii) brokerage commissions,

(iii) salaries of employees, executives and owners not directly employed in the management/operation of the Complex,

(iv) the cost of work done by Landlord for a particular tenant for which Landlord has the right to be reimbursed by such Tenant,

(v) subject to Subparagraph (3) below, such portion of expenditures as are not properly chargeable against income,

(vi) interest, principal, or other payments or loans or other indebtedness, except to the extent that the same are included in the Annual Charge-Off for capital expenditures which are permitted to be included in Operating Costs pursuant to Article 9-1(f)(3),

(vii) costs of leasehold improvements or other improvements made for tenants or other occupants of the Building,

(viii) refinancing costs, except to the extent that the same are included in the Annual Charge-Off for capital expenditures which are permitted to be included in Operating Costs pursuant to Article 9.1(f)(3),

(ix) any costs that are actually reimbursed to Landlord by third parties (including insurance proceeds),

(x) transfer, gains, franchise, inheritance, estate and income taxes,

(xi) fixed or percentage ground rent, if any, under any superior lease,

(xii) closing costs related to the sale of all or part of the Building,

(xiii) concessions given by Landlord in connection with leasing of space in the Building,

(xiv) he cost of any legal expense, judgment, settlement, or arbitration award based on damages caused by Landlord's negligence or other wrongful conduct,

(xv) costs of furnishing services or supplies or other property to any individual tenant of the Building to the extent the same exceeds the services or supplies or other property generally provided to tenants of the Building without additional charge,

(xvi) any costs or expenses required based upon the non-compliance of the Building or the Complex with applicable laws, ordinances or governmental rules and regulations in effect as of the Execution Date of this Lease,

(xvii) depreciation or amortization , except to the extent that the same are included in the Annual Charge-Off for capital expenditures which are permitted to be included in Operating Costs pursuant to Article 9.1(f)(3),

(xviii) replacement reserves,

(xix) costs and expenses of investigating, monitoring and remediating hazardous materials on, under or about the Complex, provided however, that the provisions of this clause (xv) shall not preclude the inclusion of such costs and expenses with

respect to: (a) materials which exist in the Complex as of the Execution Date of this Lease, which are not, as of the Execution Date of this Lease, deemed to be hazardous materials, and which are subsequently deemed, as a matter of law, to be hazardous materials, and (b) materials which are introduced to the Complex after the Execution Date of this Lease, which are not, as the date of such introduction, deemed to be hazardous materials, and which are subsequently deemed, as a matter of law, to be hazardous materials,

(xx) any fines or penalties incurred by Landlord due to the violation by Landlord of any law,

(xxi) Taxes, and

(xxii) Any costs in connection with the operation or maintenance of the Garage.

3. Capital Expenditures.

(i) Limitation. Notwithstanding anything to the contrary in this Lease contained, capital expenditures shall be included in Operating Costs only if either:

1. the capital item is required by law, ordinance or regulation which first becomes effective after the Execution Date of this Lease

2. the capital item is reasonably projected to reduce Operating Costs (i.e. taking into account the Annual Charge-Off included in Operating Costs on account of such capital item.

(ii) Annual Charge-Off. "Annual Charge-Off shall be defined as the annual amount of principal and interest payments which would be required to repay a loan ("Capital Loan") in equal monthly installments over the Useful Life, as hereinafter defined, of the capital item in question on a direct reduction basis at an annual interest rate equal to the Capital Interest Rate, as hereinafter defined, where the initial principal balance is the cost of the capital item in question. Notwithstanding the foregoing, if Landlord reasonably concludes on the basis of engineering estimates that a particular capital expenditure will effect savings in Building operating expenses including, without limitation, energy-related costs, and that such projected savings will, on an annual basis ("Projected Annual Savings"), exceed the Annual Charge-Off of such capital expenditure computed as aforesaid, then and in such events, the Annual Charge-Off shall be increased to an amount equal to the Projected Annual Savings; and in such circumstances, the increased Annual Charge-Off (in the amount of the Projected Annual Savings) shall be

made for such period of time as it would take to fully amortize the cost of the capital item in question, together with interest thereon at the Capital Interest Rate as aforesaid, in equal monthly payments, each in the amount of one-twelfth (1/12th) of the Projected Annual Savings, with such payments being applied first to interest and the balance to principal.

(iii) Useful Life. "Useful Life" shall be reasonably determined by Landlord in accordance with generally accepted accounting principles and practices in effect at the time of acquisition of the capital item.

(iv) Capital Interest Rate. "Capital Interest Rate" shall be defined as an annual rate of either one percentage point over the AA Bond rate (Standard & Poor's corporate composite or, if unavailable, its equivalent) as reported in the financial press at the time the capital expenditure is made or, if the capital item is acquired through third-party financing, then the actual (including fluctuating) rate paid by Landlord in financing the acquisition of such capital item.

4. Specifically Included Categories of Operating Costs. Operating Costs shall include, but not be limited to, the following:

Taxes (other than real estate taxes): Federal Social Security, Unemployment and Old Age Taxes and contributions and State Unemployment taxes and contributions accruing to and paid by the Landlord on account of all employees of Landlord and/or Landlord's managing agent, who are employed in, about or on account of the Complex, except that taxes levied upon the net income of the Landlord and taxes withheld from employees, and "Taxes" as defined in Article 9.1 (d) shall not be included herein.

Water: All charges and rates connected with water supplied to the Building and related sewer use charges.

Heat and Air Conditioning: All charges connected with heat and air conditioning supplied to the Building.

Wages: Wages and cost of all employee benefits of all employees of the Landlord and/or Landlord's managing agent who are employed in, about or on account of the Building.

Cleaning: The cost of labor and material for cleaning the Building, surrounding areaways and windows in the Building.

Elevator Maintenance: All expenses for or on account of the upkeep and maintenance of all elevators in the Building (subject, however, to Article 9.1(f)(3)(i).

Management Fee: The cost of professional management of the Building, not to exceed in any Operating Year an amount equal to three percent (3%) of gross income from the Building received by Landlord during such Operating Year (subject to adjustment pursuant to Paragraph 6 of this Article 9.1(f)).

Administrative Costs: The cost of office expense, including, without limitation, rent, business supplies and equipment.

Electricity: The cost of all electric current for the operation of any machine, appliance or device used for the operation of the premises and the Building, including the cost of electric current for the elevators, lights, air conditioning

and heating, but not including electric current which is paid for directly to the utility by the user/tenant in the Building. (If and so long as Tenant is billed directly by the electric utility for its own consumption as determined by its separate meter, or billed directly by Landlord as determined by a check meter, then Operating Costs shall include only Building and public area electric current consumption and not any demised premises electric current consumption. Wherever separate metering is unlawful, prohibited by utility company regulation or tariff or is otherwise impracticable, relevant consumption figures for the purposes of this Article 9 shall be determined by fair and reasonable allocations and engineering estimates made by Landlord.

Insurance, etc.: Fire, casualty, liability, rent loss and such other insurance as may from time to time be required by lending institutions on first-class office buildings in the City or Town wherein the Building is located and, subject to the provisions of this Article 9.1(f), all other expenses customarily incurred in connection with the operation and maintenance of first-class office buildings in the City or Town wherein the Building is located including, without limitation, insurance deductible amounts and rental costs associated with the Building's management office.

5. Definitions of Building Operating Costs and Common Area Operating Costs. "Building Operating Costs" shall be defined as the amount of Operating Costs allocable to the Building in any Operating Year. "Common Area Operating Costs" shall be defined as the amount of Operating Costs allocable to the Common Areas in any Operating Year. All Operating Costs incurred by Landlord in respect of the Complex shall be allocated, in Landlord's reasonable judgment, consistently applied among the Building, the other buildings of the Complex, and the Common Areas.

6. **Gross-Up Provision**. Notwithstanding the foregoing, in determining the amount of Operating Costs for any calendar year or portion thereof falling within the term, if less than ninety-five percent (95%) of the Rentable Area of the Building shall have been occupied by tenants at any time during the period in question, then, at Landlord's election, Operating Costs for such period shall be adjusted to equal the amount Operating Costs would have been for such period had occupancy been ninety-five percent (95%) throughout such period. The extrapolation of Operating Costs under this paragraph shall be performed by appropriately adjusting the cost of those components of Operating Costs that are impacted by changes in the occupancy of the Building.

9.2 Tax Share. Commencing as of the Rent Commencement Date in respect of each Portion of the Premises and continuing thereafter with respect to each Tax Year occurring during the term of the Lease with respect to such Portion of the Premises, Tenant shall pay to Landlord, with respect to any Tax Period, the sum of: (x) Tenant's Proportionate Building Share with respect to such Portion of the Premises of Building Taxes for such Tax Period, plus (y) Tenant's Proportionate Common Area Share with respect to such Portion of the Premises of Common Area Taxes for such Tax Period, such sum being hereinafter referred to as "Tax Share". In addition, Tenant shall make the one-time payment set forth on Exhibit 1 in order to compensate Landlord for Tenant's Tax Share in respect of the Laboratory Premises for the month of August, 2006. Tax Share shall be due within thirty (30) days after the time when billed by Landlord. In implementation and not in limitation of the foregoing, Tenant shall remit to Landlord pro rata monthly installments on account of projected Tax Share, calculated by Landlord on the basis of the most recent Tax data or budget available. If the total of such monthly remittances on account of any Tax Period is greater than the actual Tax Share for such Tax Period, Tenant may credit the difference against the next installment of rental or other charges due to Landlord hereunder, except that if such difference is determined after the end of the term of the Lease, Landlord shall refund such difference to Tenant to the extent that such difference exceeds any amounts then due from Tenant to Landlord. If the total of such

remittances is less than the actual Tax Share for such Tax Period, Tenant shall pay the difference to Landlord within thirty (30) days after the time when billed therefor.

Appropriate credit against Tax Share shall be given for any refund obtained by reason of a reduction in any Taxes by the Assessors or the administrative, judicial or other governmental agency responsible therefor, or otherwise. The original computations, as well as reimbursement or payments of additional charges, if any, or allowances, if any, under the provisions of this Article 9.2 shall be based on the original assessed valuations to the extent paid by Landlord, with adjustments to be made at a later date when the tax refund, if any, shall be paid to Landlord by the taxing authorities. Expenditures for legal fees and for other similar or dissimilar expenses incurred in obtaining the tax refund may be charged against the tax refund before the adjustments are made for the Tax Period.

9.3 Operating Expense Share. Commencing as of the Rent Commencement Date in respect of each Portion of the Premises and continuing thereafter with respect to each Operating Year occurring during the term of the Lease with respect to such Portion of the Premises, Tenant shall pay to Landlord, with respect to any Operating Year, the sum of: (x) Tenant's Proportionate Building Share with respect to such Portion of the Premises of Building Operating Costs for such Operating Year, plus (y) Tenant's Proportionate Common Area Share with respect to such Portion of the Premises of Common Area Operating Costs for such Operating Year, such sum being hereinafter referred to as "Operating Expense Share". In implementation and not in limitation of the foregoing, Tenant shall remit to Landlord pro rata monthly installments on account of projected Operating Expense Share, calculated by Landlord on the basis of the most recent Operating Costs data or budget available. If the total of such monthly remittances on account of any Operating Year is greater than the actual Operating Expense Share for such Operating Year, Tenant may credit the difference against the next installment of rent or other charges due to Landlord hereunder, except that if such difference is determined after the end of the term of the Lease, Landlord shall refund such difference to Tenant to the extent that such difference exceeds any amounts then due from Tenant to Landlord. If the total of such remittances is less than actual Operating Expense Share for such Operating Year, Tenant shall pay the difference to Landlord within thirty (30) days after the time when billed therefor.

9.4 Part Years. If a Rent Commencement Date or the Termination Date occurs in the middle of an Operating Year or Tax Period, Tenant shall be liable for only that portion of the Operating Expense or Tax Share, as the case may be, in respect of such Operating Year or Tax Period represented by a fraction the numerator of which is the number of days of the herein term after such Rent Commencement Date or prior to the Termination Date which falls within the Operating Year or Tax Period and the denominator of which is three hundred sixty-five (365), or the number of days in said Tax Period, as the case may be.

9.5 Effect of Taking. In the event of any taking of the Building or the land upon which it stands under circumstances whereby this Lease shall not terminate under the provisions of Article 20 then, Tenant's Proportionate Building Share and Tenant's Proportionate Common Area Share shall be adjusted appropriately to reflect the proportion of the Lab/Office Premises and/or the Building remaining after such taking.

9.6 Survival. Any obligations under this Article 9 which shall not have been paid at the expiration or sooner termination of the term of this Lease shall survive such expiration and shall be paid when and as the amount of same shall be determined to be due.

9.7 Tenant's Audit Right

Subject to the provisions of this paragraph, Tenant shall have the right, at Tenant's cost and expense, to examine all documentation and calculations prepared in the determination of Operating Expense Share:

1. Such documentation and calculation shall be made available to Tenant at the offices where Landlord keeps such records during normal business hours within a reasonable time after Landlord receives a written request from Tenant to make such examination.

2. Tenant shall have the right to make such examination no more than once in respect of any period in which Landlord has given Tenant a statement of the actual amount of Operating Costs.

3. Any request for examination in respect of any Operating Year may be made no more than one hundred twenty (120) days after Landlord advises Tenant of the actual amount of Operating Costs in respect of such period.

4. Such examination may be made only by a qualified lease auditor with at least five years experience approved by Landlord, which approval shall not be unreasonably withheld. Without limiting Landlord's approval rights, Landlord may withhold its approval of any examiner of Tenant who is being paid by Tenant on a contingent fee basis.

5. As a condition to performing any such examination, Tenant and its examiners shall be required to execute and deliver to Landlord an agreement, in form acceptable to Landlord, agreeing to keep confidential any information which it discovers about Landlord or the Building in connection with such examination.

6. If, after the audit by Tenant of Landlord's books and records pursuant to this Article 9.7 with respect to any calendar year, it is finally determined that: (i) Tenant has made an overpayment on account of Operating Expense Share, Landlord shall credit such overpayment against the next installment(s) of Yearly Rent thereafter payable by Tenant, except that if such overpayment is determined after the termination or expiration of the Term, Landlord shall promptly refund to Tenant the amount of such overpayment less any amounts then due from Tenant to Landlord; and (ii) Tenant has made an underpayment on account of Operating Expense Share, Tenant shall, within thirty (30) days of such determination, pay such underpayment to Landlord.

7. If, after performing any such audit, it is finally determined that Operating Costs for the calendar year under audit were overstated by more than five (5%) percent, then Landlord shall reimburse Tenant the lesser of: (x) $5,000, or (y) the reasonable out-of-pocket costs incurred by Tenant in performing such audit.

10. CHANGES OR ALTERATIONS BY LANDLORD

Landlord reserves the right, exercisable by itself or its nominee, at any time and from time to time without the same constituting an actual or constructive eviction and without incurring any liability to Tenant therefor or otherwise affecting Tenant's obligations under this Lease, to make such changes, alterations, additions, improvements, repairs or replacements in or to: (i) the Building (including the premises) (provided, however, that Landlord shall not make any changes, alterations, additions or improvements within the premises without obtaining Tenant's prior consent, which consent shall not be unreasonably withheld, conditioned or delayed) and the fixtures and equipment thereof, (ii) the street entrances, halls, passages, elevators, escalators, and stairways of the Building, and (iii) the Common Areas, and facilities located therein, as Landlord may deem necessary or desirable, and to change the arrangement and/or location of entrances or passageways, doors and doorways, and corridors, elevators, stairs, toilets, or other public parts of the Building and/or the Common Areas, provided, however, that there be no unreasonable obstruction of the right of access to, or unreasonable interference with the use and enjoyment of, the premises by Tenant. Nothing contained in this Article 10 shall be deemed to relieve Tenant of any duty, obligation or liability of Tenant with respect to making any repair, replacement or improvement or complying with any law, order or requirement of any governmental or other authority to the extent required by this Lease. Landlord reserves the right to adopt and at any time and from time to time to change the name or address of the Building. Neither this Lease nor any use by Tenant shall give Tenant any right or easement for the use of any door, passage, concourse, walkway or parking area within the Building (excluding those located within the premises) or in the Common Areas, and the use of such doors, passages, concourses, walkways, parking areas and such conveniences may be regulated or discontinued at any time and from time to time by Landlord without notice to Tenant and without affecting the obligation of Tenant hereunder or incurring any liability to Tenant therefor, provided, however, that there be no unreasonable obstruction of the right of access to, or unreasonable interference with the use and enjoyment of the premises by Tenant.

If at any time any windows of the premises are temporarily closed or darkened for any reason whatsoever including but not limited to, Landlord's own acts, Landlord shall not be liable for any damage Tenant

may sustain thereby and Tenant shall not be entitled to any compensation therefor nor abatements of rent nor shall the same release Tenant from its obligations hereunder nor constitute an eviction.

11. FIXTURES, EQUIPMENT AND IMPROVEMENTS-REMOVAL BY TENANT

All fixtures, equipment, improvements and appurtenances attached to or built into the premises prior to or during the term, whether by Landlord at its expense or at the expense of Tenant (either or both) or by Tenant shall be and remain part of the premises and shall not be removed by Tenant during or at the end of the term unless Landlord has the right to elect and does elect to require Tenant to remove such fixtures, equipment, improvements and appurtenances, at the time that Landlord approves Tenant's plans for the installation of the same in accordance with Article 12 of the Lease. All electric, plumbing, heating and sprinkling systems, fixtures and outlets, vaults, paneling, molding, radiator enclosures, cork, rubber, linoleum and composition floors, ventilating, silencing, air conditioning and cooling equipment, shall be deemed to be included in such fixtures, equipment, improvements and appurtenances, whether or not attached to or built into the premises, subject to the provisions of the next following sentence. Where not built into the premises, all removable electric fixtures, carpets, drinking or tap water facilities, furniture, or trade fixtures or business equipment or Tenant's inventory or stock in trade as well as those items, Tenant's Removable Property, listed on Exhibit 8 shall not be deemed to be included in such fixtures, equipment, improvements and appurtenances and may be, and upon the request of Landlord will be, removed by Tenant upon the condition that such removal shall not materially damage the premises or the Building and that the cost of repairing any damage to the premises or the Building arising from installation or such removal shall be paid by Tenant.

12. ALTERATIONS AND IMPROVEMENTS BY TENANT

(a) Tenant shall make no alterations, decorations, installations, removals, additions or improvements in or to the premises without Landlord's prior written consent, and then only made by contractors or mechanics approved by Landlord. No installations or work shall be undertaken or begun by Tenant until: (i) Landlord has approved written plans and specifications and a projected time schedule for such work; (ii) Tenant has made provision for either written waivers of liens from all contractors, laborers and suppliers of materials for such installations or work, the filing of lien bonds on behalf of such contractors, laborers and suppliers, or other appropriate protective measures approved by Landlord; and (iii) with respect to such work in excess of One Hundred Thousand and 00/100 ($100,000.00) Dollars, Tenant has procured appropriate surety payment and performance bonds. No material amendments or additions to such plans and specifications shall be made without the prior written consent of Landlord.

(b) Any consent or approval of Landlord required under this Article 12 shall not be unreasonably withheld, conditioned or delayed. Landlord's approval is solely given for the benefit of Landlord and neither Tenant nor any third party shall have the right to rely upon Landlord's approval of Tenant's plans for any purpose whatsoever. Without limiting the foregoing, Landlord shall not be responsible for any elements of the design of Tenant's plans (including, without limitation, compliance with law, functionality of design, the structural integrity of the design, the configuration of the premises and the placement of Tenant's furniture, appliances and equipment), and Landlord's approval of Tenant's plans shall in no event impose on Landlord any responsibility for such design. Landlord shall have no liability or responsibility for any claim, injury or damage alleged to have been caused by the particular materials, whether building standard or non-building standard, appliances or equipment selected by Tenant in connection with any work performed by or on behalf of Tenant in the premises including, without limitation, furniture, carpeting, copiers, laser printers, computers and refrigerators.

(c) Any such work, alterations, decorations, installations, removals, additions and improvements shall be done at Tenant's sole expense (except for Landlord's Contribution pursuant to Article 4.2 above), subject to such reasonable restrictions as to times and manner of construction as Landlord may from time to time designate.

(d) If Tenant shall make any alterations, decorations, installations, removals, additions or improvements (collectively "Alterations") then Landlord may elect, at the time that Landlord approves Tenant's plans for any such alterations, etc., to require the Tenant at the expiration or sooner termination of the term of this

Lease to restore the premises to substantially the same condition as existed immediately prior to such alterations, installations, removals, additions, and improvements. Reference is made to the Lay-Out Plan attached hereto as Exhibit 4 ("Lay-Out Plan"). The Lay-Out Plan is attached hereto solely for the purposes of this Article 12(d) and shall not be construed as Landlord's approval of such Lay-Out Plan. Landlord hereby agrees that if the Premises are constructed in accordance with, or substantially in accordance with, the Lay-Out Plan, Tenant shall not be required to remove any of the Alterations shown on the Lay-Out Plan. Landlord's agreement under the immediately preceding sentence relates solely to the types of Alterations shown on the Lay-Out Plan. In no event shall the provisions of this Article 12(d) be deemed to waive Landlord's right to require Tenant to remove types of Alterations which are not shown on the Lay-Out Plan.

(e) Tenant shall pay, as an additional charge, the entire increase in real estate taxes on the Building which shall, at any time prior to or after Tenant initially occupies the premises, result from or be attributable to such alteration, addition or improvement to the premises made by or for the account of Tenant to the extent that it is determinable from the records of the assessing authority that such increase in Taxes is based solely upon such alteration, addition or improvement. Without limiting the foregoing, for any Tax Period in which the assessing authority determines the assessed value of the Building and the land based upon an income approach, then the immediately preceding sentence shall not apply.

(f) Notwithstanding anything to the contrary herein contained, Tenant shall have the right, without obtaining Landlord's consent, to make interior nonstructural alterations, additions, or improvements costing not more than Fifty Thousand and 00/100 ($50,000.00) Dollars ("Permitted Alterations"), provided however that Tenant:

(i) shall give prior written notice to Landlord of such alterations, additions or improvements;

(ii) Tenant shall submit to Landlord plans for such alterations, additions or improvements if Tenant utilizes plans for such alterations, additions or improvements, and

(iii) that such alterations, additions or improvements shall not materially, adversely affect any of the Building's systems, or the ceiling of the premises.

13. TENANT'S CONTRACTORS—MECHANICS' AND OTHER LIENS—STANDARD OF TENANT'S PERFORMANCE—COMPLIANCE WITH LAWS

Whenever Tenant shall make any alterations, decorations, installations, removals, additions or improvements in or to the premises—whether such work be done prior to or after the Rent Commencement Date-Tenant will strictly observe the following covenants and agreements:

(a) Tenant agrees that it will not, either directly or indirectly, use any contractors and/or materials if their use will create any difficulty, whether in the nature of a labor dispute or otherwise, with other contractors and/or labor engaged by Tenant or Landlord or others in the construction, maintenance and/or operation of the Building or any part thereof.

(b) In no event shall any material or equipment be incorporated in or added to the premises, so as to become a fixture or otherwise a part of the Building, in connection with any such alteration, decoration, installation, addition or improvement which is subject to any lien, charge, mortgage or other encumbrance of any kind whatsoever or is subject to any security interest or any form of title retention agreement. No installations or work shall be undertaken or begun by Tenant until (i) Tenant has made provision for written waiver of liens from all contractors, laborers and suppliers of materials for such installations or work, or taken other appropriate protective measures approved by Landlord; and (ii) with respect to installations or work, the cost of which exceed $100,000, Tenant has procured appropriate surety payment and performance bonds which shall name Landlord as an additional obligee and has filed lien bond(s) (in jurisdictions where available) on behalf of such contractors, laborers and suppliers. Any mechanic's lien filed against the premises or the Building for work claimed to have been done for, or materials claimed to have been furnished to, Tenant shall be discharged by Tenant within ten (10) business days thereafter, at Tenant's expense by filing the bond required by law or otherwise. If Tenant fails so to discharge

any lien, and such failure continues for five (5) business days after written notice thereof by Landlord to Tenant, Landlord may discharge or bond over such lien at Tenant's expense and Tenant shall reimburse Landlord for any expense or cost incurred by Landlord in so doing within fifteen (15) days after rendition of a bill therefor.

(c) All installations or work done by Tenant shall be at its own expense (except for Landlord's Contribution, pursuant to Article 4.2 above) and shall at all times comply with (i) laws, rules, orders and regulations of governmental authorities having jurisdiction thereof; (ii) orders, rules and regulations of any Board of Fire Underwriters, or any other body hereafter constituted exercising similar functions, and governing insurance rating bureaus; and (iii) to the extent contained in written materials provided by Landlord to Tenant, reasonable Rules and Regulations of Landlord.

(d) Tenant shall procure all necessary permits before undertaking any work in the premises; do all of such work in a good and workmanlike manner, employing materials of good quality and complying with all governmental requirements; and defend, save harmless, exonerate and indemnify Landlord from all injury, loss or damage to any person or property occasioned by or growing out of such work. Tenant shall cause contractors employed by Tenant to carry Worker's Compensation Insurance in accordance with statutory requirements, Automobile Liability Insurance and, naming Landlord and Landlord's agent as an additional insured, Commercial General Liability Insurance covering such contractors on or about the premises in the amounts stated in Article 15 hereof or in such other reasonable amounts as Landlord shall require or authorize, and to submit certificates evidencing such coverage to Landlord prior to the commencement of such work.

14. REPAIRS BY TENANT—FLOOR LOAD

14.1 Repairs by Tenant. Tenant shall keep all and singular the premises neat and clean (Tenant hereby acknowledging that Landlord shall have no obligation to perform rug shampooing, waxing of tiled floors, or cleaning of blinds and drapes) and in such repair, order and condition as the same are in on the Rent Commencement Date or may be put in during the term hereof, reasonable use and wearing thereof and damage by fire or by other casualty excepted. Tenant shall be solely responsible for the proper maintenance of all of Tenant's equipment and appliances operated by Tenant, including, without limitation, copiers, laser printers, computers and refrigerators. Tenant shall be responsible for janitorial services to be provided to any bathrooms located within the premises. Tenant shall make, as and when needed as a result of misuse by, or neglect or improper conduct of, Tenant or Tenant's servants, employees, agents, contractors, invitees, or licensees or otherwise, all repairs in and about the premises necessary to preserve them in such repair, order and condition, which repairs shall be in quality and class equal to the original work. If Tenant is responsible for repairs and fails to make such repairs within thirty (30) days after written notice from Landlord (except that no notice shall be required in an emergency), then Landlord may elect, at the expense of Tenant, to make such repairs, including repairs of any damage or injury to the Building or the premises caused by moving property of Tenant in or out of the Building, or by installation or removal of furniture or other property, or by misuse by, or neglect, or improper conduct of, Tenant or Tenant's servants, employees, agents, contractors, or licensees.

14.2 Floor Load—Heavy Machinery. Tenant shall not place a load upon any floor of the premises exceeding the floor load per square foot of area which such floor was designed to carry and which is allowed by law. Landlord reserves the right to reasonably prescribe the weight and position of all heavy business machines and mechanical equipment, including safes, which shall be placed so as to distribute the weight. Business machines and mechanical equipment shall be placed and maintained by Tenant at Tenant's expense in settings sufficient in Landlord's judgment to absorb and prevent vibration, noise and annoyance. Landlord shall advise Tenant of its requirements with respect to the location of machines and mechanical equipment upon Tenant's written request after Tenant has advised Landlord of the items to be installed in the premises by Tenant and other information reasonably requested by Landlord relating to such machines and equipment. Tenant shall not move any safe, heavy machinery, heavy equipment, freight, bulky matter, or fixtures into or out of the Building without Landlord's prior written consent. If such safe, machinery, equipment, freight, bulky matter or fixtures requires special handling, Tenant agrees to employ only persons holding a Master Rigger's License to do said work, and that all work in connection therewith shall comply with applicable laws and regulations. Any such moving shall be at the sole risk and hazard of Tenant and Tenant will defend, indemnify and save Landlord harmless against and from any liability, loss, injury, claim or suit resulting directly or indirectly from such moving. Proper placement of all such business machines,

etc., in the premises shall be Tenant's responsibility; provided, however, that Tenant shall not be responsible for placement of a machine or equipment if Landlord designates such placement.

Landlord hereby represents to Tenant that the premises are designed with a live load floor loading capacity of seventy (70) pounds per square foot.

15. INSURANCE, INDEMNIFICATION, EXONERATION AND EXCULPATION

15.1 General Liability Insurance. Tenant shall procure, and keep in force and pay for Commercial General Liability Insurance insuring Tenant on an occurrence basis against all claims and demands for persona! injury liability (including, without limitation, bodily injury, sickness, disease, and death) or damage to property which may be claimed to have occurred from and after the time Tenant and/or its contractors enter the premises in accordance with

Article 4 of this Lease, of not less than Two Million ($2,000,000) Dollars in the event of personal injury to any number of persons or damage to property, arising out of any one occurrence, and from time to time thereafter shall be not less than such higher amounts, if procurable, as may be reasonably required by Landlord and are customarily carried by responsible similar tenants in the City or Town wherein the Building is located.

15.2 Certificates of Insurance. Such insurance shall be effected with insurers approved by Landlord with an A.M. Best rating of X, A-, or better, authorized to do business in the State wherein the Building is situated under valid and enforceable policies wherein Tenant names Landlord, Landlord's managing agent and Landlord's Mortgagees as additional insureds. Such insurance shall provide that it shall not be canceled or modified without at least thirty (30) days' prior written notice to each insured named therein. On or before the time Tenant and/or its contractors enter the premises in accordance with Articles 4 and 14 of this Lease and thereafter not less than fifteen (15) days prior to the expiration date of each expiring policy, original copies of the policies provided for in Article 15.1 issued by the respective insurers, or certificates of such policies setting forth the coverage thereof and issued by such insurers or their authorized agents together with evidence reasonably satisfactory to Landlord of the payment of all premiums for such policies, shall be delivered by Tenant to Landlord and certificates as aforesaid of such policies shall upon request of Landlord, be delivered by Tenant to the holder of any mortgage affecting the premises.

15.3 General. Subject to Article 19, Tenant will save Landlord, its agents and employees, harmless and will exonerate, defend and indemnify Landlord, its agents and employees, from and against any and all claims, liabilities or penalties asserted by or on behalf of any person, firm, corporation or public authority arising:

(i) On account of or based upon any injury to person, or loss of or damage to property, sustained or occurring on the premises during the term of this Lease and such periods of time, either prior to or after the term of the Lease, that Tenant or anyone claiming by, through or under Tenant occupies the premises or any portion thereof, on account of or based upon the act, omission, fault, negligence or misconduct of any person whomsoever (except to the extent the same is caused by Landlord, its agents, contractors or employees);

(ii) On account of or based upon any injury to person, or loss of or damage to property, sustained or occurring elsewhere (other than on the premises) in or about the Building (and, in particular, without limiting the generality of the foregoing, on or about the elevators, stairways, public corridors, sidewalks, concourses, arcades, malls, galleries, vehicular tunnels, approaches, areaways, roof, or other appurtenances and facilities used in connection with the Building or premises) arising out of the use or occupancy of the Building or premises by the Tenant, or by any person claiming by, through or under Tenant, or on account of or based upon the act, omission, fault, negligence or misconduct of Tenant, its agents, employees or contractors;

(iii) On account of or based upon (including monies due on account of) any breach by Tenant of its obligations under Article 13(b); and

(b) Tenant's obligations under this Article 15.3 shall be insured either under the Commercial General Liability Insurance required under Article 15.1, above, or by a contractual insurance rider or other coverage; and certificates of insurance in respect thereof shall be provided by Tenant to Landlord upon request.

(c) Landlord's Indemnity of Tenant. Landlord, subject to the limitations on Landlord's liability contained elsewhere in this Lease, agrees to hold Tenant harmless and to defend, exonerate and indemnify Tenant from and against any and all claims, liabilities, or penalties asserted by or on behalf of any third party for damage to property or injuries to persons sustained or occurring in the Building to the extent arising from the negligence or willful misconduct of Landlord or Landlord's agents, employees or contractors.

(d) If either party to this Lease (the "Indemnified Party") becomes aware that a claim has been threatened or asserted by a third party that may result in a claim for indemnification under the Lease by the Indemnified Party, the Indemnified Party shall give prompt written notice of such claim to the other party (the "Indemnifying Party"); provided, however, that in no event shall the failure to give such notice relieve or otherwise affect the indemnification obligations of the Indemnifying Party hereunder unless the defense against such claim is materially prejudiced thereby. With respect to any claim that has been threatened or asserted by a third party that may result in a claim for indemnification as described above, the Indemnifying Party shall have the right to defend against such claim with counsel of its own choosing, but at its own expense, and shall have the right to settle such claim as long as such settlement involves no cost or expense to the Indemnified Party.

15.4 Property of Tenant. In addition to and not in limitation of the foregoing, Tenant covenants and agrees that, to the maximum extent permitted by law, all merchandise, furniture, fixtures and property of every kind, nature and description related or arising out of Tenant's leasehold estate hereunder, which may be in or upon the premises or Building, in the public corridors, or on the sidewalks, areaways and approaches adjacent thereto, shall be at the sole risk and hazard of Tenant, and that if the whole or any part thereof shall be damaged, destroyed, stolen or removed from any cause or reason whatsoever no part of said damage or loss shall be charged to, or borne by, Landlord, unless, subject to Article 19 hereof, such damage or loss is due to the negligence or willful misconduct of Landlord or Landlord's agents, employees or contractors.

15.5 Bursting of Pipes, etc. Landlord shall not be liable for any injury or damage to persons or property resulting from fire, explosion, falling plaster, steam, gas, air contaminants or emissions, electricity, electrical or electronic emanations or disturbance, water, rain or snow or leaks from any part of the Building or from the pipes, appliances, equipment or plumbing works or from the roof, street or sub-surface or from any other place or caused by dampness, vandalism, malicious mischief or by any other cause of whatever nature, unless caused by or due to the negligence of Landlord or its contractors, or agents or employees of either, and then only, where notice and an opportunity to cure are appropriate (i.e., where Tenant has an opportunity to know or should have known of such condition sufficiently in advance of the occurrence of any such injury or damage resulting therefrom as would have enabled Landlord to prevent such damage or loss had Tenant notified Landlord of such condition), after (i) notice to Landlord of the condition claimed to constitute negligence and (ii) the expiration of a reasonable time after such notice has been received by Landlord without Landlord having taken all reasonable and practicable means to cure or correct such condition; and pending such cure or correction by Landlord, Tenant shall take all reasonably prudent temporary measures and safeguards to prevent any injury, or damage to persons or property. In no event shall Landlord be liable for any loss of Tenant's property, the risk of which is covered by Tenant's insurance or is required to be so covered by this Lease; nor shall Landlord or its agents be liable for any such damage caused by other tenants or persons in the Building or caused by operations in construction of any private, public, or quasi- public work; nor shall Landlord be liable for any latent defect in the premises or in the Building, provided, however, that the foregoing shall not relieve Landlord of its obligations to make any repairs under Article 8.5.

15.6 Repairs and Alterations—No Diminution of Rental Value. (a) Except as otherwise provided in Articles 8.6, 15.6 and 18, there shall be no allowance to Tenant for diminution of rental value and no liability on the part of Landlord by reason of inconvenience, annoyance or injury to Tenant arising from any repairs, alterations, additions, replacements or improvements made by Landlord in accordance with this Lease, or any related work performed in accordance with this Lease by Tenant or others in or to any portion of the Building or premises or any property adjoining the Building, or in or to fixtures, appurtenances, or equipment thereof, or for

failure of Landlord or others to make any repairs, alterations, additions or improvements in or to any portion of the Building, or of the premises, or in or to the fixtures, appurtenances or equipment thereof.

(b) Notwithstanding anything to the contrary in this Lease contained, if due to any such repairs, alterations, replacements, or improvements made by Landlord or if due to Landlord's failure to make any repairs, alterations, or improvements required to be made by Landlord, any portion of the premises becomes untenantable so that for the Premises Untenantability Cure Period, as hereinafter defined, the continued operation in the ordinary course of Tenant's business is materially adversely affected, then, provided that Tenant ceases to use the affected portion of the premises during the entirety of the Premises Untenantability Cure Period by reason of such untenantability, and that such untenantability and Landlord's inability to cure such condition is not caused by the fault or neglect of Tenant or Tenant's agents, employees or contractors, Yearly Rent, Operating Expense Share and Tax Share shall thereafter be abated in proportion to such untenantability until the day such condition is completely corrected. For the purposes hereof, the "Premises Untenantability Cure Period" shall be defined as five (5) consecutive business days after Landlord's receipt of written notice from Tenant of the condition causing untenantability in the premises, provided however, that the Premises Untenantability Cure Period shall be ten (10) consecutive business days after Landlord's receipt of written notice from Tenant of such condition causing untenantability in the premises if either the condition was caused by causes beyond Landlord's control or Landlord is unable to cure such condition as the result of causes beyond Landlord's control.

(c) The provisions of Paragraph (b) of this Article 15.6 shall not apply in the event of untenantability caused by fire or other casualty, or taking (see Articles 18 and 20).

16. ASSIGNMENT, MORTGAGING AND SUBLETTING

A. Tenant covenants and agrees that neither this Lease nor the term and estate hereby granted, nor any interest herein or therein, will be assigned, mortgaged, pledged, encumbered or otherwise transferred, voluntarily, by operation of law or otherwise, and that neither the premises, nor any part thereof will be encumbered in any manner by reason of any act or omission on the part of Tenant, or used or occupied, or permitted to be used or occupied, or utilized for desk space or for mailing privileges, by anyone other than Tenant, or for any use or purpose other than as stated in Exhibit 1, or be sublet, without obtaining Landlord's consent, which consent shall not, subject to the provisions of this Article 16, be unreasonably withheld, conditioned or delayed with respect to: (i) subleases of the premises, or any portion thereof, and (ii) assignments of Tenant's interest in the Lease, Tenant hereby acknowledging that, in determining whether Landlord will grant its consent, Landlord may consider whether, in Landlord's reasonable judgment, the proposed subtenant or assignee is, in Landlord's reasonable opinion, financially responsible (taking into account the fact that Tenant remains liable as the party-tenant under this Lease) and of good reputation, and Landlord may withhold its consent if the proposed subtenant or assignee is a tenant in the Complex who is then in active negotiations with Landlord for space of similar size, type and lease term.

B. *Permitted Tenant Successor; Financial Test*. Notwithstanding the foregoing, it is hereby expressly understood and agreed however, if Tenant is a corporation, that the assignment or transfer of this Lease, and the term and estate hereby granted, to any corporation or other entity ("Permitted Tenant Successor") into which Tenant is merged or with which Tenant is consolidated or to which Tenant transfers all or substantially all of its assets shall be permitted without Landlord's consent if: (i) in Landlord's reasonable judgment, Tenant then satisfies the Financial Test, as hereinafter defined, (ii) the financial condition of the Permitted Tenant Successor immediately following such assignment or transfer is at least as good as the financial condition of Tenant immediately prior to such assignment or transfer, and (iii) the Permitted Tenant Successor and Tenant shall promptly execute, acknowledge and deliver to Landlord an agreement (an "Assignment Agreement") in form and substance reasonably satisfactory to Landlord whereby the Permitted Tenant Successor shall agree to be independently bound by and upon ail the covenants, agreements, terms, provisions and conditions set forth in this Lease on the part of Tenant to be performed, and whereby the Permitted Tenant Successor shall expressly agree that the provisions of this Article 16 shall, notwithstanding such assignment or transfer, continue to be binding upon it with respect to all future assignments and transfers. For the purposes of this Lease, Tenant shall be deemed to have satisfied the "Financial Test" if, as evidenced by the Financial Statements, as hereinafter defined, of Tenant for the six months immediately preceding the transfer of the Lease to the Permitted Transferee, it is apparent that Tenant would be able to meet its average monthly obligations for one (1) year period following such transfer based upon Tenant's current working capital (i.e. the amount by which cash and cash equivalent assets exceed short term liabilities), the average use of

cash and cash equivalent assets by Tenant per month, and the average monthly short term liabilities of Tenant. The "Financial Statements" shall be defined as financial statements (asset and income statements) of Tenant, prepared in form reasonable acceptable to Landlord, and certified as accurate by the chief financial officer of Tenant.

C. *Affiliated Entities*. Notwithstanding anything to the contrary herein contained, Tenant shall have the right, without obtaining Landlord's consent, to assign its interest in this Lease and to sublease the premises, or any portion thereof, to an Affiliated Entity, as hereinafter defined, so long as such entity remains in such relationship to Tenant, and provided that prior to or simultaneously with such assignment or sublease, such Affiliated Entity executes and delivers to Landlord an Assumption Agreement, as hereinabove defined and further provided that Tenant meets the Financial Test, as defined in Article 16B hereof. For the purposes hereof, an "Affiliated Entity" shall be defined as any entity which directly or indirectly is controlled by, is under common control with, or which controls Tenant. For the purposes hereof, control shall mean the direct or indirect ownership of at least fifty (50%) percent of the beneficial interest of the entity in question. Any Permitted Tenant Successors which satisfies the requirements of Article 16C and any Affiliated Entity which satisfies the requirements of Article 16D is sometimes hereinafter referred to as "Permitted Transferee".

D. *Landlord's Recapture Right*. Notwithstanding anything to the contrary herein contained: (i) if Tenant proposes to assign Tenant's interest in the Lease to other than a Permitted Transferee, or if Tenant proposes to sublease the entirety of the premises to other than a Permitted Transferee, then Tenant shall so notify Landlord in writing prior to Tenant putting the subject space "on the market", and Landlord shall have an option to cancel and terminate

this Lease, and (ii) if Tenant proposes to sublease a portion of the premises so that, upon the commencement of the term of such sublease, there shall be then in effect subleases to entities other than Permitted Transferees which, taking into account the proposed sublease, affect more than fifty percent (50%) of the Total Rentable Area of the premises then demised to Tenant, then Tenant shall so notify Landlord in writing prior to Tenant putting the subject space "on the market", and Landlord shall have an option to cancel and terminate this Lease with respect to the portion of the premises proposed to be subleased (but not with respect to other portions of the premises then affected by any other sublease or subleases). Landlord may exercise such cancellation right by giving written notice to Tenant on or before the date twenty (20) days after Landlord receives written notice from Tenant as to the proposed assignment or sublease in question. If Landlord exercises such right, then the effective date of cancellation or termination shall occur as of the date set forth in Landlord's notice of exercise of such option, which shall not be less than sixty (60) days nor more than one hundred twenty (120) days following the giving of such notice. If Landlord exercises Landlord's option to cancel this Lease or any portion thereof, Tenant shall surrender possession of the premises, or the portion thereof which is the subject of the option, as the case may be, on the date set forth in Landlord's notice in accordance with the provisions of this Lease relating to surrender of the premises at the expiration of the Term. If this Lease is cancelled as to a portion of the premises only, Rent (including any additional rent) after the date of cancellation shall be abated on a pro rata basis in proportion to the portion of the applicable portion of the premises to which the Lease no longer is effective or applies, and Tenant's Proportionate Share and the number of parking passes shall be proportionately reduced. If Landlord does not exercise Landlord's option to cancel this Lease or any portion thereof pursuant to the foregoing provisions within the permitted time period, then Landlord shall be deemed to have waived such option to cancel or terminate the Lease as to the assignment or sublease in question, but Landlord's consent to such sublease or assignment shall continue to be required in accordance with the other provisions of this Article 16.

E. *Tenant Default*. Notwithstanding anything to the contrary in this Article 16 contained, if Tenant is in default of its obligations under the Lease beyond any applicable notice or grace periods, at the time that it requests Landlord's consent to a proposed sublease or assignment, such default shall be deemed to be a "reasonable" reason for Landlord withholding its consent to any proposed subletting or assignment for as long as such default remains uncured.

F. *No Release of Tenant*. No subletting or assignment shall relieve Tenant of its primary obligation as party Tenant hereunder, nor shall it reduce or increase Landlord's obligations under the Lease.

G. *Net Transfer Profit*. In the event of an assignment of this Lease or a sublease of the premises or any portion thereof to anyone other than a Permitted Transferee, Tenant shall pay to Landlord fifty (50%) percent of any Net Transfer Profits (as defined below), payable in accordance with the following. In the case of an assignment of this Lease, "Net Transfer Profit": (1) shall be defined as a lump sum in the amount (if any) by which any

consideration paid by the assignee in consideration of or as an inducement to Tenant to make said assignment exceeds the reasonable attorneys' fees, construction costs and brokerage Fees incurred by Tenant in order to effect such assignment (collectively, "Transfer Expenses"), and (2) be payable concurrently with the payment to be made by the assignee to Tenant. In the case of a sublease, "Net Transfer Profit": (3) shall be defined as a monthly amount equal to the amount by which the sublease rent and other charges paid by the subtenant to Tenant under the sublease exceed the sum of (x) the rent and other charges payable under this Lease for the premises or allocable to the sublet portion thereof, plus (y) an amount equal to any Transfer Expenses not previously reimbursed to Tenant, and (4) shall be payable on a monthly basis concurrently with the subtenant's payment of rent to Tenant under the sublease.

H. The listing of any name other than that of Tenant, whether on the doors of the premises or on the Building directory, or otherwise, shall not operate to vest in any such other person, firm or corporation any right or interest in this Lease or in the premises or be deemed to effect or evidence any consent of Landlord, it being expressly understood that any such listing for a party other than Tenant is a privilege extended by Landlord revocable at will by written notice to Tenant.

I. If this Lease be assigned, or if the premises or any part thereof be sublet or occupied by anybody other than Tenant, Landlord may, at any time and from time to time, collect rent and other charges from the assignee, subtenant or occupant, and apply the net amount collected to the rent and other charges herein reserved then due, but no such assignment, subletting, occupancy or collection shall be deemed a waiver of this covenant, or the acceptance of the assignee, subtenant or occupant as a tenant, or a release of Tenant from the further performance by Tenant of covenants on the part of Tenant herein contained. Any consent by Landlord to a particular assignment or subletting shall not in any way diminish the prohibition stated in the first sentence of this Article 16 (as to a later assignment or subletting) or the continuing liability of the Tenant named on Exhibit 1 as the party Tenant under this Lease. No assignment or subletting shall affect the purpose for which the premises may be used as stated in Exhibit 1 and Article 5.1.

17. MISCELLANEOUS COVENANTS

Tenant covenants and agrees as follows:

17.1 Rules and Regulations. Tenant will faithfully observe and comply with the Rules and Regulations, if any, annexed hereto and such other and further reasonable Rules and Regulations as Landlord hereafter at any time or from time to time may make and may communicate in writing to Tenant, which in the reasonable judgment of Landlord shall be necessary for the reputation, safety, care or appearance of the Building, or the preservation of good order therein, or the operation or maintenance of the Building, or the equipment thereof, or the comfort of tenants or others in the Building, provided, however, that in the case of any conflict between the provisions of this Lease and any such regulations, the provisions of this Lease shall control, and provided further that nothing contained in this Lease shall be construed to impose upon Landlord any duty or obligation to enforce the Rules and Regulations or the terms, covenants or conditions in any other lease as against any other tenant and Landlord shall not be liable to Tenant for violation of the same by any other tenant, its servants, employees, agents, contractors, visitors, invitees or licensees. Notwithstanding anything to the contrary in this Lease contained, Landlord agrees that it will not enforce said Rules and Regulations against Tenant in a discriminatory or arbitrary manner.

17.2 Access to Premises—Shoring. Tenant shall: (i) subject to Articles 2.3(b) and 10, permit Landlord to erect, use and maintain pipes, ducts and conduits in and through the premises, provided the same do not materially reduce the floor area or materially adversely affect the appearance thereof; (ii) upon prior oral notice (except that no notice shall be required in emergency situations), permit Landlord and any mortgagee of the Building or the Building and land or of the interest of Landlord therein, and any lessor under any ground or underlying lease, and their representatives, to have free and unrestricted access to and to enter upon the premises at all reasonable hours for the purposes of inspection or of making repairs, replacements or improvements in or to the premises or the Building or equipment (including, without limitation, sanitary, electrical, heating, air conditioning or other systems) or of complying with all laws, orders and requirements of governmental or other authority or of exercising any right reserved to Landlord by this Lease (including the right during the progress of any such repairs, replacements or improvements or while performing work and furnishing materials in connection with compliance

with any such laws, orders or requirements to take upon or through, or to keep and store within, the premises all necessary materials, tools and equipment); and (iii) permit Landlord, at reasonable times, to show the premises during ordinary business hours to any existing or prospective mortgagee, ground lessor, space lessee, purchaser, or assignee of any mortgage, of the Building or of the Building and the land or of the interest of Landlord therein, and during the period of nine (9) months next preceding the Termination Date to any person contemplating the leasing of the premises or any part thereof. Except in an emergency, Tenant shall have the right to have representative of Tenant accompany Landlord during any entry by Landlord into the premises. If Tenant shall not be personally present to open and permit an entry into the premises at any time when for any reason an entry therein shall be necessary or permissible, Landlord or Landlord's agents may enter the same by a master key, or may, in an emergency forcibly enter the same, without rendering Landlord or such agents liable therefor (if during such entry Landlord or Landlord's agents shall accord reasonable care to Tenant's property), and without in any manner affecting the obligations and covenants of this Lease. Landlord shall exercise its rights of access to the premises permitted under any of the terms and provisions of this Lease in such manner as to minimize to the extent practicable interference with Tenant's use and occupation of the premises. Subject to Articles 8.6 and 15.6, if an excavation shall be made upon land adjacent to the premises or shall be authorized to be made, Tenant shall afford to the person causing or authorized to cause such excavation, license to enter upon the premises for the purpose of doing such work as said person shall deem necessary to preserve the Building from injury or damage and to support the same by proper foundations without any claims for damages or indemnity against Landlord, or diminution or abatement of rent.

17.3 Accidents to Sanitary and Other Systems. Tenant shall give to Landlord prompt notice of any fire or accident in the premises or in the Building and of any damage to, or defective condition in, any part or appurtenance of the Building including, without limitation, sanitary, electrical, ventilation, heating and air conditioning or other systems located in, or passing through, the premises. Except as otherwise provided in Articles 18 and 20, and subject to Tenant's obligations in Article 14 and Article 19, such damage or defective condition shall be remedied by Landlord with reasonable diligence, but if such damage or defective condition was caused by Tenant or by the employees, licensees, contractors or invitees of Tenant, the cost to remedy the same shall be paid by Tenant. In addition, but subject to Article 19, all reasonable third-party costs incurred by Landlord in connection with the investigation of any notice given by Tenant shall be paid by Tenant if the reported damage or defective condition was caused by Tenant or by the employees, licensees, contractors, or invitees of Tenant. Subject to Articles 8.6 and 15.6, Tenant shall not be entitled to claim any eviction from the premises or any damages arising from any such damage or defect unless the same (i) shall have been occasioned by the negligence of the Landlord, its agents, servants or employees and (ii) shall not, after notice to Landlord of the condition claimed to constitute negligence, have been cured or corrected within a reasonable time after such notice has been received by Landlord; and in case of a claim of eviction unless such damage or defective condition shall have rendered a substantial portion of the premises untenantable and they shall not have been made tenantable by Landlord within a reasonable time.

17.4 Signs, Blinds and Drapes. Tenant shall put no signs in any part of the Building, except that: (i) Tenant shall have the right to install a building standard tenant identification sign at Tenant's entrance door, including Tenant's logo, subject to Landlord's prior written approval (which shall not be unreasonably withheld), and (ii) Tenant shall have the right, during the term of the Lease, to list Tenant's name on each Building directory for Building Nos. 100, 400, 700 and 1400. The initial listing of Tenant's name on the Building directories shall be at Landlord's cost and expense. Any changes, replacements or additions by Tenant to such directories shall be at Tenant's sole cost and expense. No signs or blinds may be put on or in any window or elsewhere if visible from the exterior of the Building, nor may the building standard drapes or blinds be removed by Tenant. Tenant may hang its own drapes, provided that they shall not in any way interfere with the building standard drapery or blinds or be visible from the exterior of the Building and that such drapes are so hung and installed that when drawn, the building standard drapery or blinds are automatically also drawn. Any signs or lettering in the public corridors or on the doors shall conform to Landlord's building standard design. Neither Landlord's name, nor the name of the Building or any Center, Office Park or other Park of which the Building is a part, or the name of any other structure erected therein shall be used without Landlord's consent in any advertising material (except on business stationery or as an address in advertising matter), nor shall any such name, as aforesaid, be used in any undignified, confusing, detrimental or misleading manner.

17.5 Estoppel Certificate. Tenant shall at any time and from time to time upon not less than ten (10) business days' prior notice by Landlord to Tenant, execute, acknowledge and deliver to Landlord a statement in writing certifying that this Lease is unmodified and in full force and effect (or if there have been modifications, that the same is in full force and effect as modified and stating the modifications), and the dates to which the Yearly Rent and other charges have been paid in advance, if any, stating whether or not, to Tenant's knowledge, Landlord is in default in performance of any covenant, agreement, term, provision or condition contained in this Lease and, if so, specifying each such default and such other facts as Landlord may reasonably request, it being intended that any such statement delivered pursuant hereto may be relied upon by any prospective purchaser of the Building or of the Building and the land or of any interest of Landlord therein, any mortgagee or prospective mortgagee thereof, any lessor or prospective lessor thereof, any lessee or prospective lessee thereof, or any prospective assignee of any mortgage thereof. Time is of the essence in respect of any such requested certificate, Tenant hereby acknowledging the importance of such certificates in mortgage financing arrangements, prospective sale and the like.

17.6 Prohibited Materials and Property. Tenant shall not bring or permit to be brought or kept in or on the premises or elsewhere in the Building (i) any unique, unusually valuable, rare or exotic furniture, work of art or the like unless the same is fully insured under all-risk coverage, or (ii) any data processing, electronic, optical or other equipment or property of an unusually delicate, fragile or vulnerable nature unless the same are housed, shielded and protected against harm and damage, whether by cleaning or maintenance personnel, radiations or emanations from other equipment now or hereafter installed in the Building, or otherwise. Nor shall Tenant cause or permit any potentially harmful air emissions, odors of cooking or other processes, or any unusual or other objectionable odors or emissions to emanate from or permeate the premises.

17.7 Requirements of Law—Fines and Penalties. (a) Tenant at its sole expense shall comply with all laws, rules, orders and regulations, including, without limitation, all energy-related requirements, of Federal, State, County and Municipal Authorities and with any direction of any public officer or officers, pursuant to law, which shall impose any duty upon Landlord or Tenant with respect to or arising out of Tenant's use or occupancy of the premises, provided that Tenant shall not be obligated to perform any construction or other work outside of the premises based upon the provisions of this sentence. Tenant shall reimburse and compensate Landlord for all expenditures made by, or damages or fines sustained or incurred by, Landlord due to nonperformance or noncompliance with or breach or failure to observe any item, covenant, or condition of this Lease upon Tenant's part to be kept, observed, performed or complied with, which nonperformance, noncompliance, breach or failure continues beyond the applicable notice and cure period set forth in Article 21.7 hereof (except that no notice shall be required in an emergency). If Tenant receives notice of any violation of law, ordinance, order or regulation applicable to the premises, it shall give prompt notice thereof to Landlord.

(b) Landlord shall comply with the Americans with Disabilities Act of 1990, and the rules and regulations promulgated thereunder ("ADA") so far as they relate to the parking areas, elevators, common doorways, common bathrooms, common restrooms and other common areas of the Building and/or Complex. Landlord hereby represents to Tenant that, as of the Execution Date of this Lease, Landlord has not received notices from any governmental agencies that the Building is in violation of any applicable laws.

17.8 Tenant's Acts—Effect on Insurance. Tenant shall not knowingly do or permit to be done any act or thing upon the premises or elsewhere in the Building which will invalidate or be in conflict with any insurance policies covering the Building and the fixtures and property therein; and shall not do, or permit to be done, any act or thing upon the premises which shall subject Landlord to any liability or responsibility for injury to any person or persons or to property by reason of any business or operation being carried on upon said premises or for any other reason. Tenant at its own expense shall comply with all rules, orders, regulations and requirements of the Board of Fire Underwriters, or any other similar body having jurisdiction, and shall not (i) knowingly do, or permit anything to be done, in or upon the premises, or bring or keep anything therein, except as now or hereafter permitted by the Fire Department, Board of Underwriters, Fire Insurance Rating Organization, or other authority having jurisdiction, and then only in such quantity and manner of storage as will not increase the rate for any insurance applicable to the Building, or (ii) use the premises in a manner which shall increase such insurance rates on the Building, or on property located therein, over that applicable when Tenant first took occupancy of the premises hereunder. If by reason of the failure of Tenant to comply with the provisions hereof the insurance rate applicable to any policy of insurance shall at any time thereafter be higher than it otherwise would be, the Tenant shall reimburse Landlord for

that part of any insurance premiums thereafter paid by Landlord, which shall have been charged because of such failure by Tenant. Landlord acknowledges that the use of the premises for the Permitted Use stated in Exhibit 1 (as opposed to the manner of use of the premises by Tenant, even if such manner of use is a Permitted Use) will not breach the provisions of this Article 17.8.

17.9 Miscellaneous. Tenant shall not suffer or permit the premises or any fixtures, equipment or utilities therein or serving the same, to be overloaded, damaged or defaced, nor permit any hole to be drilled or made in any part thereof, except in connection with work performed in accordance with this Lease. Tenant shall not suffer or permit any employee, contractor, business invitee or visitor to violate any covenant, agreement or obligations of the Tenant under this Lease.

18. DAMAGE BY FIRE, ETC.

(a) During the entire term of this Lease, and adjusting insurance coverages to reflect current values from time to time:—(i) Landlord shall keep the Building (excluding Tenant's Work and any other property installed by or at the expense of Tenant) (collectively, "Tenant's Insured Property") insured against loss or damage caused by any peril covered under fire, extended coverage and all risk insurance in an amount equal to one hundred percent (100%) replacement cost value above foundation walls; and (ii) Tenant shall keep Tenant's Insured Property (but not with respect to Tenant's personal property) and its personal property in and about the premises insured against loss or damage caused by any peril covered under fire, extended coverage and all risk insurance in an amount equal to one hundred percent (100%) replacement cost value. Such Tenant's insurance with respect to Tenant's Insured Property shall insure the interests of both Landlord and Tenant as their respective interests may appear from time to time and shall name Landlord as an additional insured; and the proceeds thereof shall be used only for the replacement or restoration of such property.

(b) If any portion of the premises or common areas of the Building required to be insured by Landlord under the preceding paragraph shall be damaged by fire or other insured casualty, Landlord shall proceed with diligence, subject to the then applicable statutes, building codes, zoning ordinances, and regulations of any governmental authority, and at the expense of Landlord (but only to the extent of insurance proceeds made available to Landlord by any mortgagee and/or ground lessor of the real property of which the premises are a part) to repair or cause the damaged portions of the premises and the common areas of the Building to be repaired and restored to the condition that existed prior to such damage, including repairs to Tenant's alterations, decorations, additions and improvements which shall be performed by Landlord; in all other respects, all repairs to and replacements of Tenant's personal property shall be made by and at the expense of Tenant.

(c) If the premises or any part thereof shall have been rendered unfit for use and occupation hereunder or not reasonably accessible by reason of such damage the Yearly Rent and the additional charges (including Tax Share and Operating Expense Share) or a just and proportionate part thereof, according to the nature and extent to which the premises shall have been so rendered unfit or inaccessible, shall be suspended or abated until the premises (except as to the property which is to be repaired by or at the expense of Tenant) shall have been restored as nearly as practicably may be to the condition in which they were immediately prior to such fire or other casualty.

(d) Tenant agrees to cooperate with Landlord in such manner as Landlord may reasonably request in assisting Landlord in collecting insurance proceeds due in connection with any casualty which affects the premises.

(e) Landlord shall not be liable for delays in the making of any such repairs which are due to government regulation, casualties and strikes, unavailability of labor and materials, and other causes beyond the reasonable control of Landlord, nor shall Landlord be liable for any inconvenience or annoyance to Tenant or injury to the business of Tenant resulting from delays in repairing such damage.

(f) If (i) the premises are so damaged by fire or other casualty (whether or not insured) at any time during the last eighteen (18) months of the term hereof that the cost to repair such damage to the premises is reasonably estimated to exceed one-half (1/2) of the total Yearly Rent payable hereunder for the period from the

estimated date of restoration until the Termination Date, or (ii) the Building (whether or not including any portion of the premises) is so damaged by fire or other casualty (whether or not insured) that substantial alteration or reconstruction or demolition of the Building shall in Landlord's bona fide business judgment be required, and (with respect to a termination pursuant to this clause (ii)), Landlord terminates the leases of all tenants of the Building similarly affected by the fire or casualty in question, then and in either of such events, this Lease and the term hereof may be terminated at the election of Landlord by a notice in writing of its election so to terminate which shall be given by Landlord to Tenant within sixty (60) days following such fire or other casualty, the

effective termination date of which shall be not less than thirty (30) days after the day on which such termination notice is received by Tenant. In the event of any termination, this Lease and the term hereof shall expire as of such effective termination date as though that were the Termination Date as stated in Exhibit 1 and the Yearly Rent shall be apportioned as of such date; and if the premises or any part thereof shall have been rendered unfit for use and occupation by reason of such damage the Yearly Rent and the additional charges (including Tax Share and Operating Expense Share) for the period from the date of the fire or other casualty to the effective termination date, or a just and proportionate part thereof, according to the nature and extent to which the premises shall have been so rendered unfit or inaccessible, shall be abated.

(g) In the event that the premises or the Building are damaged by fire or other casualty to such an extent so as to render the premises, or a substantial portion thereof, untenantable, and if Landlord shall fail to substantially complete said repairs or restoration within two hundred forty (240) days after the date of such fire or other casualty ("Restoration Period") for any reason other than Tenant's fault, Tenant may terminate this Lease by giving Landlord written notice as follows:

(i) Said notice shall be given after the Restoration Period.

(ii) Said notice shall set forth an effective date which is not earlier than thirty (30) days after Landlord receives said notice.

(iii) If said repairs or restoration are substantially complete on or before the date thirty (30) days (which thirty-(30)-day period shall be extended by the length of any delays caused by Tenant or Tenant's contractors) after Landlord receives such notice, said notice shall have no further force and effect.

(iv) If said repairs or restoration are not substantially complete on or before the date thirty (30) days (which thirty-(30)-day period shall be extended by the length of any delays caused by Tenant or Tenant's contractors) after Landlord receives such notice, the Lease shall terminate as of said effective date.

19. WAIVER OF SUBROGATION

In any case in which Tenant shall be obligated to pay to Landlord any loss, cost, damage, liability, or expense suffered or incurred by Landlord, Landlord shall allow to Tenant as an offset against the amount thereof (i) the net proceeds of any insurance collected by Landlord for or on account of such loss, cost, damage, liability or expense, provided that the allowance of such offset does not invalidate or prejudice the policy or policies under which such proceeds were payable, and (ii) the amount of any loss, cost, damage, liability or expense caused by a peril covered by the broadest form of property insurance generally available on the Building or in property in buildings of the type of the Building, whether or not actually procured by Landlord.

In any case in which Landlord or Landlord's managing agent shall be obligated to pay to Tenant any loss, cost, damage, liability or expense suffered or incurred by Tenant, Tenant shall allow to Landlord or Landlord's managing agent, as the case may be, as an offset against the amount thereof (i) the net proceeds of any insurance collected by Tenant for or on account of such loss, cost, damage, liability, or expense, provided that the allowance of such offset does not invalidate the policy or policies under which such proceeds were payable and (ii) the amount of any loss, cost, damage, liability or expense caused by a peril covered by the broadest form of property insurance

generally available on the Building or in property in buildings of the type of the Building, whether or not actually procured by Tenant.

The parties hereto shall each procure an appropriate clause in, or endorsement on, any property insurance policy covering the premises and the Building and personal property, fixtures and equipment located thereon and therein, pursuant to which the insurance companies waive subrogation or consent to a waiver of right of recovery in favor of either party, its respective agents or employees. Each party hereby agrees that it will not make any claim against or seek to recover from the other or its agents or employees for any loss or damage to its property or the property of others resulting from fire or other perils covered by such property insurance.

20. CONDEMNATION - EMINENT DOMAIN

In the event that the premises or any material part thereof, or the whole or any material part of the Building (i.e., such that Landlord, in Landlord's bona fide business judgment, determines that the continued operation of the Building is uneconomic), shall be taken or appropriated by eminent domain or shall be condemned for any public or quasi-public use, or (by virtue of any such taking, appropriation or condemnation) shall suffer any damage (direct, indirect or consequential) for which Landlord or Tenant shall be entitled to compensation, then (and in any such event) this Lease and the term hereof may be terminated at the election of Landlord by a notice in writing of its election so to terminate which shall be given by Landlord to Tenant within sixty (60) days following the date on which Landlord shall have received notice of such taking, appropriation or condemnation. In the event that a substantial part of the premises or of the means of access thereto shall be so taken (i.e., such portion of the premises or access is taken so that Tenant determines, in Tenant's bona fide business judgment, that Tenant's use of the premises is materially adversely affected), appropriated or condemned, then (and in any such event) this Lease and the term hereof may be terminated at the election of Tenant by a notice in writing of its election so to terminate which shall be given by Tenant to Landlord within sixty (60) days following the date on which Tenant shall have received notice of such taking, appropriation or condemnation.

Upon the giving of any such notice of termination (either by Landlord or Tenant) this Lease and the term hereof shall terminate on or retroactively as of the date on which Tenant shall be required to vacate any part of the premises or shall be deprived of a material part of the means of access thereto, provided, however, that Landlord may in Landlord's notice elect to terminate this Lease and the term hereof retroactively as of the date on which such taking, appropriation or condemnation became legally effective. In the event of any such termination, this Lease and the term hereof shall expire as of such effective termination date as though that were the Termination Date as stated in Exhibit 1, and the Yearly Rent and the additional charges (including Tax Share and Operating Expense Share) shall be apportioned as of such date. If neither party (having the right so to do) elects to terminate or if neither party has the right to terminate following any taking, appropriation or condemnation, Landlord will, with reasonable diligence and at Landlord's expense, restore the remainder of the premises, or the remainder of the means of access, as nearly as practicably may be to the same condition as obtained prior to such taking, appropriation or condemnation in which event (i) a just proportion of the Yearly Rent and the additional charges (including Tax Share and Operating Expense Share), according to the nature and extent of the taking, appropriation or condemnation and the resulting permanent injury to the premises and the means of access thereto, shall be permanently abated, and (ii) a just proportion of the remainder of the Yearly Rent and the additional charges (including Tax Share and Operating Expense Share), according to the nature and extent of the taking, appropriation or condemnation and the resultant injury sustained by the premises

and the means of access thereto, shall be abated until what remains of the premises and the means of access thereto shall have been restored as fully as may be for permanent use and occupation by Tenant hereunder. Except for any award specifically reimbursing Tenant for moving or relocation expenses or for Tenant's personal property, there are expressly reserved to Landlord all rights to compensation and damages created, accrued or accruing by reason of any such taking, appropriation or condemnation, in implementation and in confirmation of which Tenant does hereby acknowledge that Landlord shall be entitled to receive all such compensation and damages, grant to Landlord all and whatever rights (if any) Tenant may have to such compensation and damages, and agree to execute and deliver all and whatever further instruments of assignment as Landlord may from time to time reasonably request. In the event of any taking of the premises or any part thereof for temporary (i.e., not in excess of one (1) year) use, (i) this Lease shall be and remain unaffected thereby, and (ii) Tenant shall be entitled to receive for itself any award made to the extent allocable to the premises in respect of such taking on account of such use, provided, that if any taking is for a period extending beyond the

term of this Lease, such award shall be apportioned between Landlord and Tenant as of the Termination Date or earlier termination of this Lease.

21. DEFAULT

21.1 Conditions of Limitation - Re-entry - Termination. This Lease and the herein term and estate are, upon the condition that if (a) subject to Article 21.7, Tenant shall neglect or fail to perform or observe any of the Tenant's covenants or agreements herein, including (without limitation) the covenants or agreements with regard to the payment when due of rent, additional charges, reimbursement for increase in Landlord's costs, or any other charge payable by Tenant to Landlord (all of which shall be considered as part of Yearly Rent for the purposes of invoking Landlord's statutory or other rights and remedies in respect of payment defaults); or (b) Tenant shall admit in writing Tenant's inability to pay its debts generally as they become due, or (c) Tenant shall make a composition of its debts with its creditors; or (d) Tenant shall make an assignment or trust mortgage, or other conveyance or transfer of like nature, of all or a substantial part of its property for the benefit of its creditors, or (e) an attachment on mesne process, on execution or otherwise, or other legal process shall issue against Tenant's leasehold interest hereunder and a sale shall be held thereunder; or (f) any judgment, final beyond appeal secured by any lien, attachment or the like on Tenant's leasehold interest hereunder, shall be entered, recorded or filed against Tenant in any court, registry, etc. and Tenant shall fail to pay such judgment within sixty (60) days after the judgment shall have become final beyond appeal or to discharge or secure by surety bond such lien, attachment, etc. within such sixty (60) day period; or (g) the leasehold hereby created shall be taken on execution or by other process of law and shall not be revested in Tenant within sixty (60) days thereafter; or (h) a receiver, sequesterer, trustee or similar officer shall be appointed by a court of competent jurisdiction to take charge of all or substantially all of Tenant's property and such appointment shall not be vacated within sixty (60) days; or (i) any proceeding shall be instituted by or against Tenant pursuant to any of the provisions of any Act of Congress or State law relating to bankruptcy, reorganizations, arrangements, compositions or other relief from creditors, and, in the case of any proceeding instituted against it, if Tenant shall fail to have such proceedings dismissed within sixty (60) days or if Tenant is adjudged bankrupt or insolvent as a result of any such proceeding, or (j) any event shall occur or any contingency shall arise whereby this Lease, or the term and estate thereby created, would (by operation of law or otherwise) devolve upon or pass to any person, firm or corporation other than Tenant, except as expressly permitted under Article 16 hereof (including, without limitation, provisions of Article 16 that require Landlord not to unreasonably withhold its consent to such a transfer) - then, and in any such event (except as hereinafter in Article 21.2 otherwise provided) Landlord may, by notice to Tenant, elect to terminate this Lease; and thereupon (and without prejudice to any remedies which might otherwise be available for arrears of rent or other charges due hereunder or preceding breach of covenant or agreement and without prejudice to Tenant's liability for damages as hereinafter stated), upon the giving of such notice, this Lease shall terminate as of the date specified therein as though that were the Termination Date as stated in Exhibit 1. Without being taken or deemed to be guilty of any manner of trespass or conversion, and without being liable to indictment, prosecution or damages therefor, Landlord may, in any manner permitted by law, enter into and upon the premises (or any part thereof in the name of the whole); repossess the same as of its former estate; and expel Tenant and those claiming under Tenant. Wherever "Tenant" is used in subdivisions (c), (d), (e), (f), (g), (h) and (i) of this Article 21.1, it shall be deemed to include the present guarantor of Tenant's obligations under this Lease, if any. The words "re-entry" and "re-enter" as used in this Lease are not restricted to their technical legal meanings.

21.2 Intentionally Omitted.

21.3 Damages - Termination. Upon the termination of this Lease under the provisions of this Article 21, then except as hereinabove in Article 21.2 otherwise provided, Tenant shall pay to Landlord the rent and other charges payable by Tenant to Landlord up to the time of such termination, shall continue to be liable for any preceding breach of covenant, and in addition, shall pay to Landlord as damages, at the election of Landlord

either:

(x) the amount by which, at the time of the termination of this Lease (or at any time thereafter when Landlord shall elect damages under this subparagraph (x) if Landlord shall have initially elected damages under subparagraph (y), below) (such time, in either event, being hereinafter referred to as the "Election

Date"), (i) the aggregate of the rent and other charges projected over the period commencing at such time and ending on the Termination Date as stated in Exhibit 1 exceeds (ii) the aggregate fair rental value of the premises for such period;

or:

(y) amounts equal to the rent and other charges which would have been payable by Tenant had this Lease not been so terminated, payable upon the due dates therefor specified herein following such termination and until the Termination Date as specified in Exhibit 1, provided, however, if Landlord shall re-let the premises during such period, that Landlord shall credit Tenant with the net rents received by Landlord from such re-letting, such net rents to be determined by first deducting from the gross rents as and when received by Landlord from such re-letting the expenses incurred or paid by Landlord in terminating this Lease, as well as the expenses of re-letting, including altering and preparing the premises for new tenants, brokers' commissions, and all other similar and dissimilar expenses of re-letting properly chargeable against the premises and the rental therefrom, it being understood that any such re-letting may be for a period equal to or shorter or longer than the remaining term of this Lease; and provided, further, that (i) in no event shall Tenant be entitled to receive any excess of such net rents over the sums payable by Tenant to Landlord hereunder and (ii) in no event shall Tenant be entitled in any suit for the collection of damages pursuant to this Subparagraph (y) to a credit in respect of any net rents from a re-letting except to the

extent that such net rents are actually received by Landlord and relate to the period of time on which such suit is based. If the premises or any part thereof should be re-let in combination with other space, then proper apportionment on a square foot area basis shall be made of the rent received from such re-letting and of the expenses of re-letting.

If Landlord at any time elects to recover under subparagraph (x), then Landlord may not recover any damages under subparagraph (y) with respect to any period of time after the Election Date.

Landlord agrees to use reasonable efforts to relet the premises after Tenant vacates the premises in the event that the Lease is terminated based upon a default by Tenant hereunder. Marketing of Tenant's premises in a manner similar to the manner in which Landlord markets other premises within Landlord's control in the Building or Complex shall be deemed to have satisfied Landlord's obligation to use "reasonable efforts." In no event shall Landlord be required to (i) solicit or entertain negotiations with any other prospective tenants for the premises until Landlord obtains full and complete possession of the premises including, without limitation, the final and unappealable legal right to re-let the premises free of any claim of Tenant, (ii) relet the premises before leasing other vacant space in the Complex, (iii) lease the premises for a rental less than the current fair market rental then prevailing for similar space in the Complex, or (iv) enter into a lease with any proposed tenant that does not have, in Landlord's reasonable opinion, sufficient financial resources or operating experience to operate the premises in a first-class manner.

In calculating the rent and other charges under Subparagraph (x), above, there shall be included, in addition to the Yearly Rent, Tax Share and Operating Expense Share and all other considerations agreed to be paid or performed by Tenant, on the assumption that all such amounts and considerations would have remained constant (except as herein otherwise provided) for the balance of the full term hereby granted.

Suit or suits for the recovery of such damages, or any installments thereof, may be brought by Landlord from time to time at its election, and nothing contained herein shall be deemed to require Landlord to postpone suit until the date when the term of this Lease would have expired if it had not been terminated hereunder.

Nothing herein contained shall be construed as limiting or precluding the recovery by Landlord against Tenant of any sums or damages to which, in addition to the damages particularly provided above, Landlord may lawfully be entitled by reason of any default hereunder on the part of Tenant.

21.4 Fees and Expenses.

(a) If Tenant shall default in the performance of any covenant on Tenant's part to be performed as in this Lease contained, and if such default continues uncured for twenty (20) days after written notice thereof is given by Landlord to Tenant (except that no prior notice shall be required in an emergency), Landlord may

immediately, or at any time thereafter while such default continues uncured, without further notice, perform the same for the account of Tenant. If Landlord at any time is compelled to pay or so elects (as provided above) to pay any sum of money, or do any act which will require the payment of any sum of money, by reason of the failure of Tenant to comply with any provision hereof, or if Landlord is compelled to or does so incur (as provided above) any expense, including reasonable attorneys' fees, in instituting, prosecuting, and/or defending any action or proceeding instituted by reason of any default of Tenant hereunder, Tenant shall on demand pay to Landlord by way of reimbursement the sum or sums so paid by Landlord with all costs and damages, plus interest computed as provided in Article 6 hereof.

(b) Tenant shall pay Landlord's cost and expense, including reasonable attorneys' fees, incurred (i) in enforcing any obligation of Tenant under this Lease or (ii) as a result of Landlord, without its fault, being made party to any litigation pending by or against Tenant or any persons claiming through or under Tenant. Tenant shall not be obligated to make any payment to Landlord of any attorneys' fees incurred by Landlord unless judgment is entered (final, and beyond appeal) in favor of Landlord in the lawsuit relating to such fees. Landlord shall, prior to incurring any such expenses pursuant to this Article 21.4(b), give Tenant at least ten (10) days' prior written notice. Tenant shall have the right to engage counsel reasonable acceptable to Landlord to defend Landlord in any litigation referred to in clause (ii) and to settle such litigation provided that after such settlement neither Landlord nor any of its agents or employees has any liability as a result of such settlement.

(c) Landlord shall pay, upon demand by Tenant, reasonable attorneys' fees incurred by Tenant in connection with any lawsuit between Landlord and Tenant where judgment is entered (final, and beyond appeal) in favor of Tenant.

21.5 Waiver of Redemption. Tenant does hereby waive and surrender all rights and privileges which it might have under or by reason of any present or future law to redeem the premises or to have a continuance of this Lease for the term hereby demised after being dispossessed or ejected therefrom by process of law or under the terms of this Lease or after the termination of this Lease as herein provided.

21.6 Landlord's Remedies Not Exclusive. The specified remedies to which Landlord may resort hereunder are cumulative and are not intended to be exclusive of any remedies or means of redress to which Landlord may at any time be lawfully entitled, and Landlord may invoke any remedy (including the remedy of specific performance) allowed at law or in equity as if specific remedies were not herein provided for.

21.7 Grace Period. Notwithstanding anything to the contrary in this Article contained, Landlord agrees not to take any action to terminate this Lease (a) for default by Tenant in the payment when due of any sum of money, if Tenant shall cure such default within ten (10) days after written notice thereof is given by Landlord to Tenant, provided, however, that no such notice need be given and no such default in the payment of money shall be curable if on two (2) prior occasions within the prior twelve (12) month period there had been a default in the payment of money which had been cured after notice thereof had been given by Landlord to Tenant as herein provided or (b) for default by Tenant in the performance of any covenant or other provisions of this Lease other than a covenant to pay a sum of money, if Tenant shall cure such default within a period of thirty (30) days after written notice thereof is given by Landlord to Tenant (except that where the nature of the default is such that remedial action should appropriately take place sooner, as reasonably indicated in such written notice, then such remedial action shall take place within the time period set forth in such notice, which shall not in any event be less than fifteen (15) days after such notice is given), or within such additional period as may reasonably be required to cure such default if (because of governmental restrictions or any other cause beyond the reasonable control of Tenant) the default is of such a nature that it cannot reasonably be expected to be cured within such thirty-(30)-day period, provided, however, (1) that there shall be no extension of time beyond such thirty-(30)-day period for the curing of any such default unless, not more than ten (10) days after the receipt of the notice of default, Tenant in writing (i) shall specify the cause on account of which the default cannot be cured during such period and shall advise Landlord of its intention duly to institute all steps necessary to cure the default and (ii) shall, as

soon as reasonably practicable, duly institute and thereafter diligently prosecute to completion all steps necessary to cure such default and, (2) that no notice of the opportunity to cure a default need be given, and no grace period whatsoever shall be allowed to Tenant, if the default is a condition set forth in any of the following clauses: Articles 21.1(b) through (j).

Notwithstanding anything to the contrary in this Article 21.7 contained, except to the extent prohibited by applicable law, any statutory notice and grace periods provided to Tenant by law are hereby expressly waived by Tenant in favor of the notice and grace periods set forth in this Article 21.7.

22. END OF TERM - ABANDONED PROPERTY

Upon the expiration or other termination of the term of this Lease, Tenant shall peaceably quit and surrender to Landlord the premises and all alterations and additions thereto, broom clean, in the same order, repair and condition which Tenant is required to maintain the premises pursuant to Article 14 (except as provided herein and in Articles 8.5, 18 and 20), Tenant has no responsibility of repair or restoration. Subject to Article 12, Tenant shall remove all of its property installed by Tenant in the premises or elsewhere in the Building, and, to the extent specified by Landlord at the time that Landlord approves Tenant's plans for the same, all alterations and additions made by Tenant within the premises, and shall repair any damages to the premises or the Building caused by their installation or by such removal. Tenant's obligation to observe or perform this covenant shall survive the expiration or other termination of the term of this Lease.

Tenant will remove any personal property from the Building and the premises upon or prior to the expiration or termination of this Lease and any such property which shall remain in the Building or the premises thereafter shall be conclusively deemed to have been abandoned, and may either be retained by Landlord as its property or sold or otherwise disposed of in such manner as Landlord may see fit. If any part thereof shall be sold, that Landlord may receive and retain the proceeds of such sale and apply the same, at its option, against the expenses of the sale, the cost of moving and storage, any arrears of Yearly Rent, additional or other charges payable hereunder by Tenant to Landlord and any damages to which Landlord may be entitled under Article 21 hereof or pursuant to law and the balance, if any, shall be paid to Tenant.

If Tenant or anyone claiming under Tenant shall remain in possession of the premises or any part thereof after the expiration or prior termination of the term of this Lease without any agreement in writing between Landlord and Tenant with respect thereto, then, prior to the acceptance of any payments for rent or use and occupancy by Landlord, the person remaining in possession shall be deemed a tenant-at-sufferance. Whereas the parties hereby acknowledge that Landlord may need the premises after the expiration or prior termination of the term of the Lease for other tenants and that the damages which Landlord may suffer as the result of Tenant's holding-over cannot be determined as of the Execution Date hereof, in the event that Tenant so holds over, Tenant shall pay to Landlord in addition to all rental and other charges due and accrued under the Lease prior to the date of termination, charges (based upon fair market rental value of the premises) for use and occupation of the premises thereafter and, in addition to such sums and any and all other rights and remedies which Landlord may have at law or in equity, an additional use and occupancy charge in the amount of fifty percent (50%) of either the Yearly Rent and other charges calculated (on a daily basis) at the highest rate payable under the terms of this Lease, but measured from the day on which Tenant's hold-over commenced and terminating on the day on which Tenant vacates the premises or the fair market value of the premises for such period, whichever is greater. In addition, Tenant shall save Landlord, its agents and employees, harmless and will exonerate, defend and indemnify Landlord, its agents and employees, from and against any and all damages which Landlord may suffer on account of Tenant's hold-over in the premises for a period of more than thirty (30) days after the expiration or prior termination of the term of the Lease.

23. SUBORDINATION

(a) Subject to any mortgagee's or ground lessor's election, as hereinafter provided for, this Lease is subject and subordinate in all respects to: (i) all matters of record (including, without limitation, deeds and land disposition agreements), ground leases and/or underlying leases, and all mortgages, any of which now affect the real property of which the premises are a part, or any part of such real property, and/or Landlord's interest or estate therein, and (ii) all ground and/or underlying leases and all mortgages which may in the future affect the real property of which the premises are a part, or any part of such real property, and/or Landlord's interest or estate therein, and (with respect to any such existing or future mortgage) to each advance made and/or hereafter to be made under any such mortgages, and to all renewals, modifications, consolidations, replacements and extensions thereof and all substitutions therefor. This Article 23 shall be self-operative and no further instrument or subordination shall

be required. In confirmation of such subordination, Tenant shall execute, acknowledge and deliver promptly any certificate or instrument that Landlord and/or any mortgagee and/or lessor under any ground or underlying lease and/or their respective successors in interest may reasonably request to effectuate such subordination, subject to Landlord's, mortgagee's and ground lessor's right to do so for, on behalf and in the name of Tenant under certain circumstances, as hereinafter provided. Tenant acknowledges that, where applicable, any amendment to this Lease approved hereafter by Landlord may be subject to the further consent or approval of such mortgagee and/or ground lessor; and the failure or refusal of such mortgagee and/or ground lessor to give such consent or approval shall, notwithstanding anything to the contrary in this Lease contained, constitute reasonable justification for Landlord's withholding its approval of such amendment.

(b) Notwithstanding anything to the contrary in this Article 23 contained, as to any future mortgages, ground leases, and/or underlying lease or deeds of trust, the herein provided subordination and attornment shall be effective only if the mortgagee, ground lessor or trustee therein, as the case may be, agrees, by a written instrument in recordable form and in the customary form of such mortgagee, ground lessor, or trustee, with such commercially reasonable changes as Tenant may request ("Nondisturbance Agreement") that, as long as Tenant shall not be in terminable default of the obligations on its part to be kept and performed under the terms of this Lease, this Lease will not be affected and Tenant's possession hereunder will not be disturbed by any default in, termination, and/or foreclosure of, such mortgage, ground lease, and/or underlying lease or deed of trust, as the case may be. Landlord shall request that the holder of the current mortgage affecting the Complex enter into a Nondisturbance Agreement with Tenant.

(c) Any such mortgagee or ground lessor may from time to time subordinate or revoke any such subordination of the mortgage or ground lease held by it to this Lease. Such subordination or revocation, as the case may be, shall be effected by written notice to Tenant and by recording an instrument of subordination or of such revocation, as the case may be, with the appropriate registry of deeds or land records and to be effective without any further act or deed on the part of Tenant. In confirmation of such subordination or of such revocation, as the case may be, Tenant shall execute, acknowledge and promptly

deliver any certificate or instrument that Landlord, any mortgagee or ground lessor may reasonably request to effectuate such subordination or such revocation, subject to Landlord's, mortgagee's and ground lessor's right to do so for, on behalf and in the name of Tenant under certain circumstances, as hereinafter provided.

(d) Without limitation of any of the provisions of this Lease, if any ground lessor or mortgagee shall succeed to the interest of Landlord by reason of the exercise of its rights under such ground lease or mortgage (or the acceptance of voluntary conveyance in lieu thereof) or any third party (including, without limitation, any foreclosure purchaser or mortgage receiver) shall succeed to such interest by reason of any such exercise or the expiration or sooner termination of such ground lease, however caused, then such successor may, upon notice and request to Tenant (which, in the case of a ground lease, shall be within thirty (30) days after such expiration or sooner termination), succeed to the interest of Landlord under this Lease, subject to such commercially reasonable limitations of liability as the holder of such ground lease or mortgage may require in the Nondisturbance Agreement. In the event of such succession to the interest of the Landlord — and notwithstanding that any such mortgage or ground lease may antedate this Lease — the Tenant shall attorn to such successor and shall ipso facto be and become bound directly to such successor in interest to Landlord to perform and observe all the Tenant's obligations under this Lease without the necessity of the execution of any further instrument. Nevertheless, Tenant agrees at any time and from time to time during the term hereof to execute a suitable instrument in confirmation of Tenant's agreement to attorn, as aforesaid, subject to Landlord's, mortgagee's and ground lessor's right to do so for, on behalf and in the name of Tenant under certain circumstances, as hereinafter provided.

(e) The term "mortgage(s)" as used in this Lease shall include any mortgage or deed of trust. The term "mortgagee(s)" as used in this Lease shall include any mortgagee or any trustee and beneficiary under a deed of trust or receiver appointed under a mortgage or deed of trust. The term "mortgagor(s)" as used in this Lease shall include any mortgagor or any grantor under a deed of trust.

(f) Tenant hereby irrevocably constitutes and appoints Landlord or any such mortgagee or ground lessor, and their respective successors in interest, acting singly, Tenant's attorney-in-fact to execute and deliver any such certificate or instrument for, on behalf and in the name of Tenant, but only if Tenant fails to execute, acknowledge and deliver any such certificate or instrument in the following circumstances:

(i) Landlord, such mortgagee, or ground lessor ("Requesting Party") shall have given Tenant a written request ("First Request") therefore, stating that if Tenant does not timely execute and deliver such certificate or instrument, the Requesting Party may act as Tenant's attorney-in-fact in accordance with this Article 23(e), together with a Nondisturbance Agreement, as defined in Article 23(a), executed on behalf of the mortgagee, ground lessor, or trustee in question;

(ii) Tenant shall fail to execute and deliver such certificate or instrument within ten (10) days of the First Request;

(iii) The Requesting Party shall, after the expiration of such ten (10) day period, have given Tenant another request ("Second Request") therefor, stating that Tenant has failed timely to respond to the First Request for such certificate or instrument and that if Tenant does not execute and deliver such certificate or instrument within ten (10) days of the Second Request, the Requesting Party may act as Tenant's attorney-in-fact in accordance with this Article 23(e); and

(iv) Tenant shall fail to execute and deliver such certificate or instrument within ten (10) days of the Second Request.

(g) Notwithstanding anything to the contrary contained in this Article 23, if all or part of Landlord's estate and interest in the real property of which the premises are a part shall be a leasehold estate held under a ground lease, then: (i) the foregoing subordination provisions of this Article 23 shall not apply to any mortgages of the fee interest in said real property to which Landlord's leasehold estate is not otherwise subject and subordinate; and (ii) the provisions of this Article 23 shall in no way waive, abrogate or otherwise affect any agreement by any ground lessor (x) not to terminate this Lease incident to any termination of such ground lease prior to its term expiring or (y) not to name or join Tenant in any action or proceeding by such ground lessor to recover possession of such real property or for any other relief.

(h) In the event of any failure by Landlord to perform, fulfill or observe any agreement by Landlord herein, in no event will the Landlord be deemed to be in default under this Lease permitting Tenant to exercise any or all rights or remedies under this Lease until the Tenant shall have given written notice of such failure to any mortgagee (ground lessor and/or trustee) of which Tenant shall have been advised in writing and, with respect to any right which Tenant has to terminate the Lease, until a reasonable period of time shall have elapsed following the giving of such notice, during which such mortgagee (ground lessor and/or trustee) shall have the right, but shall not be obligated, to remedy such failure.

24. QUIET ENJOYMENT

Landlord covenants that if, and so long as, Tenant keeps and performs each and every covenant, agreement, term, provision and condition herein contained on the part and on behalf of Tenant to be kept and performed, Tenant shall quietly enjoy the premises from and against the claims of all persons claiming by, through or under Landlord or superior title to Landlord, subject, nevertheless, to the covenants, agreements, terms, provisions and conditions of this Lease.

Without incurring any liability to Tenant, Landlord may permit access to the premises and open the same, after reasonable notice to Tenant, except that no notice shall be required in an emergency, whether or not Tenant shall be present, upon any demand of any receiver of Tenant's estate, trustee of Tenant's estate, assignee for the benefit of creditors of Tenant, sheriff, marshal or court officer entitled to, or reasonably purporting to be entitled to, such access for the purpose of taking possession of, or removing, Tenant's property or for any other lawful purpose (but this provision and any action by Landlord hereunder shall not be deemed a recognition by Landlord that the person or official making such demand has any right or interest in or to this Lease, or in or to the premises), or,

again after reasonable notice to Tenant, except that no notice shall be required in an emergency, upon demand of any representative of the fire, police, building, sanitation or other department of the city, state or federal governments.

25. ENTIRE AGREEMENT — WAIVER — SURRENDER

25.1 Entire Agreement. This Lease and the Exhibits made a part hereof contain the entire and only agreement between the parties and any and all statements and representations, written and oral, including previous correspondence and agreements between the parties hereto, are merged herein. Tenant acknowledges that all representations and statements upon which it relied in executing this Lease are contained herein and that the Tenant in no way relied upon any other statements or representations, written or oral. Any executory agreement hereafter made shall be ineffective to change, modify, discharge or effect an abandonment of this Lease in whole or in part unless such executory agreement is in writing and signed by the party against whom enforcement of the change, modification, discharge or abandonment is sought.

25.2 Waiver. The failure of either party to seek redress for violation, or to insist upon the strict performance, of any covenant or condition of this Lease, or any of the Rules and Regulations promulgated hereunder, shall not prevent a subsequent act, which would have originally constituted a violation, from having all the force and effect of an original violation. The receipt by Landlord of rent with knowledge of the breach of any covenant of this Lease shall not be deemed a waiver of such breach. The failure of Landlord to enforce any of such Rules and Regulations against Tenant and/or any other tenant in the Building shall not be deemed a waiver of any such Rules and Regulations. No provisions of this Lease shall be deemed to have been waived by either party unless such waiver be in writing signed by such party. No payment by Tenant or receipt by Landlord of a lesser amount than the monthly rent herein stipulated shall be deemed to be other than on account of the stipulated rent, nor shall any endorsement or statement on any check or any letter accompanying any check or payment as rent be deemed an accord and satisfaction, and Landlord may accept such check or payment without prejudice to Landlord's right to recover the balance of such rent or pursue any other remedy in this Lease provided.

25.3 Surrender. No act or thing done by Landlord during the term hereby demised shall be deemed an acceptance of a surrender of the premises, and no agreement to accept such surrender shall be valid, unless in writing signed by Landlord. No employee of Landlord or of Landlord's agents shall have any power to accept the keys of the premises prior to the termination of this Lease. The delivery of keys to any employee of Landlord or of Landlord's agents shall not operate as a termination of the Lease or a surrender of the premises. In the event that Tenant at any time desires to have Landlord underlet the premises for Tenant's account, Landlord or Landlord's agents are authorized to receive the keys for such purposes without releasing Tenant from any of the obligations under this Lease, and Tenant hereby relieves Landlord of any liability for loss of or damage to any of Tenant's effects in connection with such underletting unless, subject to Article 19, caused by the gross negligence or willful misconduct of Landlord or Landlord's agents or contractors (including subcontractors).

26. INABILITY TO PERFORM - EXCULPATORY CLAUSE

(a) Except as provided in Article 4.1 and 4.2 hereof, this Lease and the obligations of Tenant to pay rent hereunder and perform all the other covenants, agreements, terms, provisions and conditions hereunder on the part of Tenant to be performed shall in no way be affected, impaired or excused because Landlord is unable to fulfill any of its obligations under this Lease or is unable to supply or is delayed in supplying any service expressly or impliedly to be supplied or is unable to make or is delayed in making any repairs, replacements, additions, alterations, improvements or decorations or is unable to supply or is delayed in supplying any equipment or fixtures if Landlord is prevented or delayed from so doing by reason of strikes or labor troubles or any other similar or dissimilar cause whatsoever beyond Landlord's reasonable control, including but not limited to, governmental preemption in connection with a national emergency or by reason of any rule, order or regulation of any department or subdivision thereof of any governmental agency or by reason of the conditions of supply and demand which have been or are affected by war, hostilities or other similar or dissimilar emergency. In each such instance of inability of Landlord to perform, Landlord shall exercise reasonable diligence to eliminate the cause of such inability to perform.

(b) Tenant shall neither assert nor seek to enforce any claim against Landlord, or Landlord's agents or employees, or the assets of Landlord or of Landlord's agents or employees, for breach of this Lease or otherwise, other than against Landlord's interest in the Complex of which the premises are a part and in the uncollected rents, issues and profits thereof, and Tenant agrees to look solely to such interest for the satisfaction of any liability of Landlord under this Lease, it being specifically agreed that in no event shall Landlord or Landlord's agents or employees (or any of the officers, trustees, directors, partners, beneficiaries, joint venturers, members, stockholders or other principals or representatives, and the like, disclosed or undisclosed, thereof) ever be personally liable for any such liability. This paragraph shall not limit any right that Tenant might otherwise have to obtain injunctive relief against Landlord or to take any other action which shall not involve the personal liability of Landlord to respond in monetary damages from Landlord's assets other than the Landlord's interest in said real estate, as aforesaid. In no event shall Landlord or Landlord's agents or employees (or any of the officers, trustees, directors, partners, beneficiaries, joint venturers, members, stockholders or other principals or representatives and the like, disclosed or undisclosed, thereof) ever be liable for consequential or incidental damages. Without limiting the foregoing, in no event shall Landlord or Landlord's agents or employees (or any of the officers, trustees, directors, partners, beneficiaries, joint venturers, members, stockholders or other principals or representatives and the like, disclosed or undisclosed, thereof) ever be liable for lost profits of Tenant. If by reason of Landlord's failure to acquire title to the real property of which the premises are a part, Landlord shall be held to be in breach of this Lease, Tenant's sole and exclusive remedy shall be a right to terminate this Lease.

(c) Landlord shall not be deemed to be in default of its obligations under the Lease unless Tenant has given Landlord written notice of such default, and Landlord has failed to cure such default within thirty (30) days after Landlord receives such notice or such longer period of time as Landlord may reasonably require to cure such default. Except as otherwise expressly provided in this Lease, in no event shall Tenant have the right to terminate the Lease nor shall Tenant's obligation to pay Yearly Rent or other charges under this Lease abate based upon any default by Landlord of its obligations under the Lease.

(d) Except with respect to any liability which Tenant has to Landlord based upon any breach by Tenant of its obligations under Article 22: (i) in no event shall Tenant or Tenant's agents or employees (or any of the officers, trustees, directors, partners, beneficiaries, joint venturers, members, stockholders or other principals or representatives and the like, disclosed or undisclosed, thereof) ever be liable for consequential or incidental damages, and (ii) in no event shall Tenant or Tenant's agents or employees (or any of the officers, trustees, directors, partners, beneficiaries, joint venturers, members, stockholders or other principals or representatives and the like, disclosed or undisclosed, thereof) ever be liable for lost profits of Landlord.

27. BILLS AND NOTICES

Any notice, consent, request, bill, demand or statement hereunder by either party to the other party shall be in writing and, if received at Landlord's or Tenant's address, shall be deemed to have been duly given when either delivered or served personally or mailed in a postpaid envelope, deposited in the United States mail addressed to Landlord at its address as stated in Exhibit 1 and to Tenant at the premises (or at Tenant's address as stated in Exhibit 1, if

mailed prior to Tenant's occupancy of the premises), or if any address for notices shall have been duly changed as hereinafter provided, if mailed as aforesaid to the party at such changed address. Either party may at any time change the address or specify an additional address for such notices, consents, requests, bills, demands or statements by delivering or mailing, as aforesaid, to the other party a notice stating the change and setting forth the changed or additional address, provided such changed or additional address is within the United States.

If Tenant is a partnership, Tenant, for itself, and on behalf of all of its partners, hereby appoints Tenant's Service Partner, as identified on Exhibit 1, to accept service of any notice, consent, request, bill, demand or statement hereunder by Landlord and any service of process in any judicial proceeding with respect to this Lease on behalf of Tenant and as agent and attorney-in-fact for each partner of Tenant.

All bills and statements for reimbursement or other payments or charges due from Tenant to Landlord hereunder shall be due and payable in full twenty (20) business days, unless herein otherwise provided, after submission thereof by Landlord to Tenant. Tenant's failure to make timely payment of any amounts indicated by such bills and statements, whether for work done by Landlord at Tenant's request, reimbursement provided for by this Lease or for any other sums properly owing by Tenant to Landlord, shall be treated as a default in the payment

of rent, in which event Landlord shall have all rights and remedies provided in this Lease for the nonpayment of rent, subject to applicable notice and cure provisions.

28. PARTIES BOUND — SEIZIN OF TITLE

The covenants, agreements, terms, provisions and conditions of this Lease shall bind and benefit the successors and assigns of the parties hereto with the same effect as if mentioned in each instance where a party hereto is named or referred to, except that no violation of the provisions of Article 16 hereof shall operate to vest any rights in any successor or assignee of Tenant and that the provisions of this Article 28 shall not be construed as modifying the conditions of limitation contained in Article 21 hereof.

If, in connection with or as a consequence of the sale, transfer or other disposition of the real estate (land and/or Building, either or both, as the case may be) of which the premises are a part, Landlord ceases to be the owner of the reversionary interest in the premises, Landlord shall be entirely freed and relieved from the performance and observance thereafter of all covenants and obligations hereunder on the part of Landlord to be thereafter performed and observed, it being understood and agreed in such event (and it shall be deemed and construed as a covenant running with the land) that the person succeeding to Landlord's ownership of said reversionary interest shall thereupon and thereafter assume, and perform and observe, any and all of such covenants and obligations of Landlord.

29. MISCELLANEOUS

29.1 Separability. If any provision of this Lease or portion of such provision or the application thereof to any person or circumstance is for any reason held invalid or unenforceable, the remainder of the Lease (or the remainder of such provision) and the application thereof to other persons or circumstances shall not be affected thereby.

29.2 Captions, etc. The captions are inserted only as a matter of convenience and for reference, and in no way define, limit or describe the scope of this Lease nor the intent of any provisions thereof. References to "State" shall mean, where appropriate, the District of Columbia and other Federal territories, possessions, as well as a state of the United States.

29.3 Broker. Tenant represents and warrants that it has not directly or indirectly dealt, with respect to the leasing of office space in the Building or any Center, Office Park or other Park of which it is a part (called "Building, etc." in this Article 29.3) with any broker or had its attention called to the premises or other space to let in the Building, etc. by anyone other than the brokers designated in Exhibit 1. Tenant agrees to defend, exonerate and save harmless and indemnify Landlord and anyone claiming by, through or under Landlord against any claims for a commission arising in connection with any breach of the foregoing representation and warranty, provided that Landlord shall be solely responsible for the payment of brokerage commissions to the broker, person or firm, if any, designated in Exhibit 1. Landlord represents and warrants that, in connection with the execution and delivery of the Lease, it has not directly or indirectly dealt with any broker other than the brokers designated on Exhibit 1. Landlord agrees to defend, exonerate and save harmless Tenant and anyone claiming by, through, or under Tenant against any claims arising in connection with any breach of the representation and warranty set forth in the immediately preceding sentence.

29.4 Intentionally Omitted Arbitration. Any disputes relating to provisions or obligations in this Lease as to which a specific provision for a reference to arbitration is made herein shall be submitted to arbitration in accordance with the provisions of applicable state law (as identified on Exhibit 1), as from time to time amended. Arbitration proceedings, including the selection of an arbitrator, shall be conducted pursuant to the rules, regulations and procedures from time to time in effect as promulgated by the American Arbitration Association. Prior written notice of application by either party for arbitration shall be given to the other at least ten (10) days before submission of the application to the said Association's office in the City wherein the Building is situated (or the nearest other city having an Association office). The arbitrator shall hear the parties and their evidence. The decision of the arbitrator shall be binding and conclusive, and judgment upon the award or decision of the arbitrator may be entered in the appropriate court of law (as identified on Exhibit 1); and the parties consent to the jurisdiction

of such court and further agree that any process or notice of motion or other application to the Court or a Judge thereof may be served outside the State wherein the Building is situated by registered mail or by personal service, provided a reasonable time for appearance is allowed. The costs and expenses of each arbitration hereunder and their apportionment between the parties shall be determined by the arbitrator in his award or decision. No arbitrable dispute shall be deemed to have arisen under this Lease prior to (i) the expiration of the period of twenty (20) days after the date of the giving of written notice by the party asserting the existence of the dispute together with a description thereof sufficient for an understanding thereof; and (ii) where a Tenant payment {e.g., Tax Share or Operating Expense Share under Article 9 hereof) is in issue, the amount billed in good faith by Landlord having been paid by Tenant.

29.6 Governing Law. This Lease is made pursuant to, and shall be governed by, and construed in accordance with, the laws of the State wherein the Building is situated and any applicable local municipal rules, regulations, by-laws, ordinances and the like.

29.7 Assignment of Rents. With reference to any assignment by Landlord of its interest in this Lease, or the rents payable hereunder, conditional in nature or otherwise, which assignment is made to or held by a bank, trust company, insurance company or other institutional lender holding a mortgage or ground lease on the Building, Tenant agrees:

(a) that the execution thereof by Landlord and the acceptance thereof by such mortgagee and/or ground lessor shall never be deemed an assumption by such mortgagee and/or ground lessor of any of the obligations of the Landlord thereunder, unless such mortgagee and/or ground lessor shall, by written notice sent to the Tenant, specifically otherwise elect; and

(b) that, except as aforesaid, such mortgagee and/or ground lessor shall be treated as having assumed the Landlord's obligations thereunder only upon foreclosure of such mortgagee's mortgage or deed of trust (or acceptance of a deed in lieu of foreclosure) or termination of such ground lessor's ground lease or the taking of possession of the demised premises for the purposes of foreclosure after having given notice of its exercise of the option stated in Article 23 hereof to succeed to the interest of the Landlord under this Lease.

29.8 Representation of Authority. By his execution hereof each of the signatories on behalf of the respective parties hereby warrants and represents to the other that he is duly authorized to execute this Lease on behalf of such party. If Tenant is a corporation, Tenant hereby appoints the signatory whose name appears below on behalf of Tenant as Tenant's attorney-in-fact for the purpose of executing this Lease for and on behalf of Tenant.

29.9 Expenses Incurred by Landlord Upon Tenant Requests. Tenant shall, upon demand, reimburse Landlord for all reasonable third party, out-of-pocket expenses, including, without limitation, legal fees, incurred by Landlord in connection with all requests by Tenant for consents, approvals or execution of collateral documentation related to this Lease, including, without limitation, costs incurred by Landlord in the review and approval of Tenant's plans and specifications in connection with proposed alterations to be made by Tenant to the premises, requests by Tenant to sublet the premises or assign its interest in the Lease, the execution by Landlord of estoppel certificates requested by Tenant, and requests by Tenant for Landlord to execute waivers of Landlord's interest in Tenant's property in connection with third party financing by Tenant. Such costs shall be deemed to be additional rent under the Lease.

29.10 Survival. Without limiting any other obligation of the Tenant which may survive the expiration or prior termination of the term of the Lease, all obligations on the part of Landlord or Tenant to indemnify, defend, or hold the other harmless, as set forth in this Lease (including, without limitation, any obligations under Articles 13(d), 15.3, and 29.3) shall survive the expiration or prior termination of the term of the Lease with respect to events that occur before such expiration or prior termination of the term of the Lease.

29.11 Hazardous Materials. Landlord and Tenant agree as follows with respect to the existence or use of "Hazardous Material" in or on the premises.

(a) Tenant, at its sole cost and expense, shall comply with all laws, statutes, ordinances, rules and regulations of any local, state or federal governmental authority having jurisdiction concerning environmental, health and safety matters (collectively, "Environmental Laws"), including, but not limited to, any discharge by Tenant or anyone for whom Tenant is legally responsible into the air, surface, water, sewers, soil or groundwater of any Hazardous Material (as defined in Article 29.1 l(c)), whether within or outside the premises within the Complex. Notwithstanding the foregoing, nothing contained in this Lease requires, or shall be construed to require, Tenant to incur any liability related to or arising from environmental conditions (i) for which the Landlord is responsible pursuant to the terms of this Lease, or (ii) which existed within the premises or the Complex prior to the date Tenant takes possession of the premises.

(b) Tenant shall not cause or permit any Hazardous Material to be brought upon, kept or used in or about the premises or otherwise in the Complex by Tenant, its agents, employees, contractors or invitees, without the prior written consent of Landlord, except for Hazardous Materials which are typically used in the operation of offices or laboratories and those Hazardous Materials identified on Exhibit 7, provided that such materials are stored, used and disposed of in strict compliance with all applicable Environmental Laws and with good scientific and medical practice. Notwithstanding the foregoing, with respect to any of Tenant's Hazardous Material which Tenant does not properly handle, store or dispose of in compliance with all applicable Environmental Laws and good scientific and medical practice, Tenant shall, upon written notice from Landlord, no longer have the right to bring such material into the buildings or the Complex until Tenant has demonstrated, to Landlord's reasonable satisfaction, that Tenant has implemented programs to thereafter properly handle, store or dispose of such material.

(c) As used herein, the term "Hazardous Material" means any hazardous or toxic substance, material or waste or petroleum derivative which is or becomes regulated by any Environmental Law, specifically including live organisms, viruses and fungi, medical waste, and so-called "biohazard" materials. The term "Hazardous Material" includes, without limitation, any material or substance which is (i) designated as a "hazardous substance" pursuant to Section 1311 of the Federal Water Pollution Control Act (33 U.S.C. Section 1317), (ii) defined as a "hazardous waste" pursuant to Section 1004 of the Federal Resource Conservation and Recovery Act, 42 U.S.C. Section 6901 et seq. (42 U.S.C. Section 6903), (iii) defined as a "hazardous substance" pursuant to Section 101 of the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. Section 9601 et seq. (42 U.S.C. Section 9601), (iv) defined as "hazardous substance" or "oil" under Chapter 21E of the General Laws of Massachusetts, or (v) a so-called "biohazard" or medical waste, or is contaminated with blood or other bodily fluids; and "Environmental Laws" include, without limitation, the laws listed in the preceding clauses (i) through (iv).

(d) Any increase in the premium for necessary insurance on the premises or the Complex which arises from Tenant's use and/or storage of these Hazardous Materials shall be solely at Tenant's expense. Tenant shall procure and maintain at its sole expense such additional insurance as may be necessary to comply with any requirement of any Federal, State or local government agency with jurisdiction as to Tenant's operations at the premises. Landlord hereby agrees that Tenant shall not be charged with any increase in insurance premiums based upon its use, in the premises of the Initial Hazardous Materials listed on Exhibit 7, so long as Tenant handles, stores, transports and disposes of the same in accordance with applicable Environmental Laws.

(e) Tenant hereby covenants and agrees to indemnify, defend and hold Landlord harmless from any and all claims, judgments, damages, penalties, fines, costs, liabilities or losses (collectively "Losses") which Landlord may reasonably incur arising out of contamination of real estate, the Complex or other property not a part of the premises, which contamination arises as a result of: (i) the presence of Hazardous Material in the premises, the

presence of which commences during the term of the Lease or any period of time when Tenant, or anyone claiming by, through or under Tenant occupies the premises is caused or knowingly permitted by Tenant, or (ii) from a breach by Tenant of its obligations under this Article 29.11. This indemnification of Landlord by Tenant includes, without limitation, reasonable costs incurred in connection with any investigation of site conditions or any cleanup, remedial, removal or restoration work required by any federal, state or local governmental agency or political subdivision because of Hazardous Material present in the soil or ground water on or under the premises based upon the circumstances identified in the first sentence of this Article 29.1 l(e). The indemnification and hold harmless obligations of Tenant under this Article 29.1 l(e) shall survive any termination of this Lease with respect to any act or omission which occurs during the term of this Lease or any period of time during which Tenant, or

anyone claiming by, through or under Tenant continues to occupy the premises. Without limiting the foregoing, if the presence of any Hazardous Material in the buildings or otherwise in the Complex caused or knowingly permitted by Tenant results in any contamination of the premises, Tenant shall promptly take all actions at its sole expense as are necessary to return the premises to a condition which complies with all Environmental Laws; provided that Landlord's approval of such actions shall first be obtained, which approval shall not be unreasonably withheld so long as such actions, in Landlord's reasonable discretion, would not potentially have any materially adverse long-term or short-term effect on the premises, and, in any event, Landlord shall not withhold its approval of any proposed actions which are required by applicable Environmental Laws.

(f) On or before the date that Tenant, and anyone claiming by, through or under Tenant, vacates the premises, and immediately prior to the time that Tenant delivers the premises to Landlord, Tenant shall:

1. Cause the premises to be decommissioned in accordance with the regulations of the U.S. Nuclear Regulatory Commission and/or the Massachusetts Department of Public Health for the control of radiation, cause the premises to be released for unrestricted use by the Radiation Control Program of the Massachusetts Department of Public Health for the control of radiation, and deliver to Landlord the report of a certified industrial hygienist stating that he or she has examined the premises and found no evidence that such portion contains Hazardous Materials, as defined in this Article 29.11, or is otherwise in violation of any Environmental Law, as defined in this Article 29.11 hereof.

2. Provide to Landlord a copy of its most current chemical waste removal manifest and a certification from Tenant executed by an officer of Tenant that no Hazardous Materials or other potentially dangerous or harmful chemicals brought onto the premises from and after the date that Tenant first took occupancy of the premises remain in the premises.

(g) Landlord represents and warrants that, except as set forth in the Environmental Assessment Report referenced on Exhibit 10 attached hereto, Landlord is unaware of the existence of any Hazardous Material on the land or in the Building, including its interior, systems or structure (collectively, the "Property") which is in violation of applicable Environmental Laws (Tenant acknowledging that a portion of the Building and Complex are leased to tenants who use their premises for laboratory purposes). Landlord shall indemnify Tenant and hold it harmless against any claims, damages, losses or liabilities (including reasonable attorneys' fees) arising from any breach of the representations and warranties set forth in this Article 29.1 l(g) and from claims, damages, losses or liabilities arising in the event that Landlord, Landlord's agents, employees or contractors release Hazardous Materials onto the Complex.

(h) If any Hazardous Materials are discovered on the Property which are in violation of Environmental Law, then so long as Tenant is not responsible for the same in accordance with this Article 29.11, Landlord shall cause the same to be removed or remediated when, if, and in the manner required by applicable Environmental Law. Landlord may, if allowed by the provisions of Article 9.1(f), include the costs so incurred by Landlord in Operating Costs.

29.12 Patriot Act Tenant represents and warrants to Landlord that:

(A) Tenant is not in violation of any Anti-Terrorism Law;

(B) Tenant is not, as of the date hereof:

(ii) conducting any business or engaging in any transaction or dealing with any Prohibited Person, including the making or receiving of any contribution of funds, goods or services to or for the benefit of any Prohibited Person;

(iii) dealing in, or otherwise engaging in any transaction relating to, any property or interests in property blocked pursuant to Executive Order No. 13224; or

(iv) engaging in or conspiring to engage in any transaction that evades or avoids, or has the purpose of evading or avoiding, or attempts to violate any of the prohibitions set forth in, any Anti-Terrorism Law; and

(C) Neither Tenant nor any of its affiliates, officers, directors, shareholders, members or lease guarantor, as applicable, is a Prohibited Person.

If at any time any of these representations becomes false, then it shall be considered a material default under this Lease.

As used herein, "Anti-Terrorism Law" is defined as any law relating to terrorism, anti-terrorism, money-laundering or anti-money laundering activities, including without limitation the United States Bank Secrecy Act, the United States Money Laundering Control Act of 1986, Executive Order No. 13224, and Title 3 of the USA Patriot Act, and any regulations promulgated under any of them. As used herein "Executive Order No. 13224" is defined as Executive Order No. 13224 on Terrorist Financing effective September 24, 2001, and relating to "Blocking Property and Prohibiting Transactions With Persons Who Commit, Threaten to Commit, or Support Terrorism", as may be amended from time to time. "Prohibited Person" is defined as (i) a person or entity that is listed in the Annex to Executive Order No. 13224, or a person or entity owned or controlled by an entity that is listed in the Annex to Executive Order No. 13224; (ii) a person or entity with whom Landlord is prohibited from dealing or otherwise engaging in any transaction by any Anti-Terrorism Law;

or (iii) a person or entity that is named as a "specially designated national and blocked person" on the most current list published by the U.S. Treasury Department Office of Foreign Assets Control at its official website, http://www.treas.gov/ofac/tl lsdn.pdf or at any replacement website or other official publication of such list. "USA Patriot Act" is defined as the "Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001" (Public Law 107-56), as may be amended from time to time.

29.13 Security Deposit. A. Tenant acknowledges that Landlord is unwilling to execute the Lease unless Tenant provides Landlord with additional security for Tenant's obligations under the Lease. Therefore, Tenant shall deliver to Landlord, on the date that Tenant executes and delivers the Lease to Landlord, an Irrevocable Standby Letter of Credit ("Letter of Credit") which shall be (1) in the form attached hereto as Exhibit 5, (2) issued by a bank reasonably acceptable to Landlord with minimum assets of Ten Billion Dollars ($10,000,000,000.00), upon which presentment may be made in Boston, Massachusetts (Landlord hereby agreeing that, notwithstanding the foregoing, it has approved Cambridge Savings Bank to act as the issuing bank for the Letter of Credit), (3) in an amount equal to Three Hundred Seventy-Eight Thousand Two Hundred Twenty and 00/100 ($378,220.00) Dollars and (4) for a term of one (1) year, subject to extension in accordance with the terms of the Letter of Credit. Tenant shall, on or before the date thirty (30) days prior to the expiration of the term of such Letter of Credit, deliver to Landlord a new Letter of Credit satisfying the foregoing conditions ("Substitute Letter of Credit") in lieu of the Letter of Credit then being held by Landlord. The Letter of Credit shall be automatically renewable in accordance with the provisions of Exhibit 5; provided that if the issuer of such Letter of Credit gives notice of its election not to renew such Letter of Credit for any additional period pursuant thereto, Tenant shall be required to deliver a Substitute Letter of Credit satisfying the conditions hereof, on or before the date thirty (30) days prior to the expiration of the term of such Letter of Credit. Tenant agrees that it shall from time to time, as necessary, whether as a result of a draw on the Letter of Credit by Landlord pursuant to the terms hereof or as a result of the expiration of the Letter of Credit then in effect, renew or replace the original and any subsequent Letter of Credit so that a Letter of Credit, in the amount required hereunder, is in effect until a date which is at least sixty (60) days after the Termination Date of the Lease. If Tenant fails to furnish such renewal or replacement at least thirty (30) days prior to the stated expiration date of the Letter of Credit then held by Landlord, Landlord may draw upon such Letter of Credit and hold the proceeds thereof (and such proceeds need not be segregated) as a Security Deposit pursuant to the terms of this Article 29.13.

B. In the event that Tenant is in default of its obligations under the Lease, which default continues beyond the applicable notice and cure period set forth in Article 21.7, then the Landlord shall have the right, at any time after such event, without giving any further notice to Tenant, to draw down from said Letter of Credit

(Substitute Letter of Credit or Additional Letter of Credit, as defined below, as the case may be) (a) the amount necessary to cure such default or (b) if such default cannot reasonably be cured by the expenditure of money, the amount which, in Landlord's reasonable opinion, is necessary to satisfy Tenant's liability on account thereof. In the event of any such draw by the Landlord, Tenant shall, within fifteen (15) business days of written demand therefor, deliver to Landlord an additional Letter of Credit satisfying the foregoing conditions ("Additional Letter of Credit"), except that the amount of such Additional Letter of Credit shall be the amount of such draw. In addition, in the event of a termination of this Lease based upon the default of Tenant under the Lease, or a rejection of the Lease pursuant to the provisions of the Federal Bankruptcy Code (in connection with Tenant's bankruptcy), Landlord shall have the right to draw upon the Letter of Credit (from time to time, if necessary) to cover the full amount of damages and other amounts due from Tenant to Landlord under the Lease. Any amounts so drawn shall, at Landlord's election, be applied first to any unpaid rent and other charges which were due prior to the filing of the petition for protection under the Federal Bankruptcy Code. Tenant hereby covenants and agrees not to oppose, contest or otherwise interfere with any attempt by Landlord to draw down from said Letter of Credit including, without limitation, by commencing an action seeking to enjoin or restrain Landlord from drawing upon said Letter of Credit. Tenant also hereby expressly waives any right or claim it may have to seek such equitable relief in such an instance. In addition to whatever other rights and remedies it may have against Tenant if Tenant breaches its obligations under this paragraph, Tenant hereby acknowledges that it shall be liable for any and all damages which Landlord may suffer as a result of any such breach.

C. Upon request of Landlord or any (prospective) purchaser or mortgagee of the Building, Tenant shall, at its expense, cooperate with Landlord in obtaining an amendment to or replacement of any Letter of Credit which Landlord is then holding so that the amended or new Letter of Credit reflects the name of the new owner of the Building.

D. To the extent that Landlord has not previously drawn upon any Letter of Credit, Substitute Letter of Credit, Additional Letter of Credit or security deposit proceeds (collectively "Collateral") held by the Landlord, and to the extent that Tenant is not otherwise in default of its obligations under the Lease as of the termination date of the Lease, Landlord shall return such Collateral to Tenant on the termination of the term of the Lease.

E. In no event shall the proceeds of any Letter of Credit be deemed to be a prepayment of rent nor shall it be considered as a measure of liquidated damages.

F. Notwithstanding the foregoing, provided that Tenant satisfies all of the following conditions (collectively "Reduction Conditions"): (i) Tenant has not been in default of any of its obligations under this Lease after the giving of any applicable notice and the expiration of any applicable grace period within the one (1) year period prior to the applicable Reduction Date, as hereinafter defined, in question, (ii) Tenant is, as of such Reduction Date, not in default of its obligation under the Lease, (iii) the Lease is then in full force and effect and (iv) Tenant satisfies the Financial Test, as defined in Article 16B of the Lease as of the Reduction Date (as hereinafter defined) in question, Landlord shall refund to Tenant such portion of the Letter of Credit which it is then holding so as to cause the total Letter of Credit to be reduced as of such Reduction Date to the amount shown in the following schedule, provided however, the Letter of Credit shall never be reduced below $189,110.00. If Tenant fails to achieve a reduction in the Letter of Credit as of any Reduction Date based upon Tenant's failure to satisfy any Reduction Condition as of such Reduction Date, then if Tenant, on a subsequent date, satisfies all of the Reduction Conditions, Tenant shall have the right to reduce the Letter of Credit on such subsequent date as if such subsequent date was the Reduction Date in question.

Reduction Date		Reduced Amount of Letter of Credit
Second anniversary of the Rent Commencement Date in respect of the Office Portion of the premises	$	283,664.00
Third anniversary of the Rent Commencement Date in respect of the Office Portion of the premises	$	189,110.00

Any reduction in the Letter of Credit shall be accomplished by Tenant providing Landlord with a substitute Letter of Credit in the reduced amount in exchange for the existing Letter of Credit(s) which Landlord is then holding, or by an amendment to the existing Letter of Credit(s) then held by Landlord, in

form and substance acceptable to Landlord, which is accepted by Landlord in writing, which acceptance shall not be unreasonably withheld.

29.14 Tenant's Option to Extend the Term of the Lease

A. On the conditions, which conditions Landlord may waive, at its election, by written notice to Tenant at any time, that Tenant is not in default of its covenants and obligations under the Lease beyond the applicable notice and cure period, and that Merrimack Pharmaceuticals, Inc., itself, and/or any Permitted Transferees, as defined in Article 16, are occupying at least sixty-five percent (65%) of the Total Rentable Area of the premises then demised to Tenant, both as of the time of option exercise and as of the commencement of the hereinafter described additional term, Tenant shall have the option to extend the term of this Lease for one (1) additional five (5) year term ("Additional Term"). Such Additional Term shall commence as of September 1, 2011 and expire as of August 31, 2016. Tenant may exercise such option to extend by giving Landlord written notice on or before December 1, 2010 (the "Extension Notice"). Upon the timely giving of such notice, the term of this Lease shall be deemed extended upon all of the terms and conditions of this Lease, except that Landlord shall have no obligation to construct or renovate the premises and that the Yearly Rent during such additional term shall be as hereinafter set forth. If Tenant fails to give timely notice, as aforesaid, Tenant shall have no further right to extend the term of this Lease, time being of the essence of this Article 29.14.

B. Yearly Rent

The Yearly Rent during the Additional Term shall be based upon the Fair Market Rental Value, as defined in Article 29.15 hereof, as of the commencement of the additional term, of the premises then demised to Tenant. Landlord shall upon written request from Tenant, made on or after September 1, 2010, advise Tenant of Landlord's offer ("Landlord's Offer") as to the Yearly Rent which will be payable by Tenant during the Additional Term within fifteen (15) days after Landlord receives such request from Tenant. If Tenant timely exercises its extension option, but Tenant does not accept Landlord's Offer in writing either in the Extension Notice or otherwise, then Tenant shall be deemed to have rejected Landlord's Offer. If Tenant timely exercises its extension option and Tenant either objects to Landlord's Offer, or Tenant is deemed to have objected to Landlord's Offer as aforesaid, then the term of the Lease shall be deemed extended, as aforesaid, the provisions of Article 29.15 shall apply to the determination of Fair Market Rental Value, and Landlord's Offer shall be deemed to be non-binding and without any force or effect.

C. Tenant shall have no further option to extend the term of the Lease other than the one (1) Additional Term provided in this Article 29.14.

D. Notwithstanding the fact that upon Tenant's exercise of the herein option to extend the term of the Lease such extension shall be self-executing, as aforesaid, the parties shall promptly execute a lease amendment reflecting such Additional Term after Tenant exercises the herein option, except that the Yearly Rent payable in respect of such Additional Term may not be set forth in said amendment. Subsequently, after such Yearly Rent is determined, the parties shall execute a written agreement confirming the same. The execution of such lease amendment shall not be deemed to waive any of the conditions to Tenant's exercise of its rights under this Article 29.14, unless otherwise specifically provided in such lease amendment.

29.15 Definition of Fair Market Rental Value.

A. "Fair Market Rental Value" shall be computed as of the date in question based upon the then current annual rental charge (i.e., the sum of Yearly Rent plus escalation and other charges), including provisions for subsequent increases and other adjustments for leases or agreements to lease then currently being negotiated, or executed for comparable space located in the Building and in comparable first-class office and laboratory buildings located in Kendall Square/East Cambridge, Massachusetts. In determining Fair Market Rental Value, the following factors, among others, shall be taken into account and given effect: the charges payable under this Lease (including Tax Share and Operating Expense Share), the construction allowances (or the Landlord's buildout expense) in leases

then currently being negotiated or executed for comparable space (and the absence of any construction allowance or landlord's buildout expense in connection with the extension of the Lease), free rent or other concessions in leases then currently being negotiated or executed for comparable space, size of premises, location of premises, lease term, condition of building, the condition of the premises and services provided by the Landlord.

B. Dispute as to Fair Market Rental Value

Landlord shall initially designate Fair Market Rental Value and Landlord shall furnish data in support of such designation (the parties hereby acknowledging that Landlord's Offer shall not be considered to be Landlord's designation of Fair Market Rental Value for the purposes of this Article 29.15B). If Tenant disagrees with Landlord's designation of a Fair Market Rental Value, Tenant shall have the right, by written notice given within thirty (30) days after Tenant has been notified of Landlord's designation, to submit such Fair Market Rental Value to arbitration. Fair Market Rental Value shall be submitted to arbitration as follows: Fair Market Rental Value shall be determined by impartial arbitrators, one to be chosen by the Landlord, one to be chosen by Tenant, and a third to be selected, if necessary, as below provided. The unanimous written decision of the two first chosen, without selection and participation of a third arbitrator, or otherwise, the written decision of a majority of three arbitrators chosen and selected as aforesaid, shall be conclusive and binding upon Landlord and Tenant. "Notwithstanding the foregoing, if no two arbitrators agree upon the same Fair Market Rental Value, then the Fair Market Rental Value shall be the average of the closest Fair Market Rental Values determined by arbitrators, but if the three are equidistant, the middle one shall be used. Landlord and Tenant shall each notify the other of its chosen arbitrator within ten (10) days following the call for arbitration and, unless such two arbitrators shall have reached a unanimous decision within thirty (30) days after their designation, they shall so notify the President of the Boston Bar Association (or such organization as may succeed to said Boston Bar Association) and request him to select an impartial third arbitrator. Each arbitrator shall be a real estate broker or real estate appraiser with at least ten year's experience in dealing with laboratory and office properties in the Cambridge market, who is qualified to determine Fair Market Rental Value as herein defined. Such third arbitrator and the first two chosen shall, subject to commercial arbitration rules of the American Arbitration Association, hear the parties and their evidence and render their decision within thirty (30) days following the conclusion of such hearing and notify Landlord and Tenant thereof. Landlord and Tenant shall bear the expense of the third arbitrator (if any) equally. The decision of the arbitrators shall be binding and conclusive, and judgment upon the award or decision of the arbitrator may be entered in the appropriate court of law (as identified on Exhibit 1); and the parties consent to the jurisdiction of such court and further agree that any process or notice of motion or other application to the Court or a Judge thereof may be served outside the Commonwealth of Massachusetts by registered mail or by personal service, provided a reasonable time for appearance is allowed. If the dispute between the parties as to a Fair Market Rental Value has not been resolved before the commencement of Tenant's obligation to pay rent based upon such Fair Market Rental Value, then Tenant shall pay Yearly Rent and other charges under the Lease in respect of the premises in question based upon the Fair Market Rental Value designated by Landlord until either the agreement of the parties as to the

Fair Market Rental Value, or the decision of the arbitrators, as the case may be, at which time Tenant shall pay any underpayment of rent and other charges to Landlord, or Landlord shall reftind any overpayment of rent and other charges to Tenant.

29.16 Tenant's Right of First Offer. On the conditions (which conditions Landlord may waive, at its election, by written notice to Tenant at any time) that: (i) Tenant is not in default of its covenants and obligations under the Lease beyond the applicable notice and cure period, (ii) Landlord has not exercised its recapture rights pursuant to Article 16 of the Lease, (iii) the Lease is then in full force and effect, and (iv) Merrimack Pharmaceuticals, Inc., itself and/or one (1) or more Permitted Transferees are occupying at least sixty-five percent (65%) of the Total Rentable Area of the premises then demised to Tenant, both at the time that Landlord is required to give Landlord's Notice, as hereinafter defined, and as of the Term Commencement Date in respect of the RFO Premises, Tenant shall have the following right to lease each RFO Premises, as hereinafter defined, when such RFO Premises become available for lease to Tenant, as hereinafter defined.

A. *Definition of RFO Premises*

"RFO Premises" shall be defined as any separately demised area on the second (2nd) or third (3rd) floors of the Building, when such area becomes available for lease, as hereinafter defined. For the purposes of this Article 29.16, an RFO Premises shall be deemed to be "available for lease to Tenant" if, during the term of this Lease

(including any extension thereof), Landlord, in its sole judgment, determines that such area will become available for leasing to the general public (i.e. when Landlord determines that: (i) the then current tenant of such RFO Premises will vacate such RFO Premises, (ii) all Superior Rights, as hereinafter defined, in such area have either been irrevocably waived or have lapsed unexercised, and when Landlord intends to offer such area for lease). In no event shall Tenant have any rights under this Article 29.16 on or after August 31, 2010 ("Last RFO Date"), except that if Tenant has timely requested that Landlord provide to Tenant a Landlord's Offer pursuant to Article 29.14B, then the Last RFO Date shall be November 30, 2010, and if Tenant timely exercises its right to extend the term of the Lease for the Additional Term pursuant to Article 29.14, Tenant shall have no rights under this Article 29.16 on or after August 31, 2015 ("Last RFO Date") (i.e. Landlord shall have no obligation to give Landlord's Notice, as hereinafter defined, to Tenant on or after the Last RFO Date, as defined above).

B. *Definition of Superior Rights*

Tenant's rights under this Article 29.16 are subject to and subordinate to: (i) all rights of extension, renewal, expansion, first offer, and first refusal which exist as of the Execution Date of the Lease, and (ii) Landlord's right to enter into an agreement with a tenant of any RFO Premises for the purposes of renewing or extending such tenant's lease, even if such tenant does not possess such rights in its lease.

C. *Exercise of Right to Lease RFO Premises*

Landlord shall give Tenant written notice ("Landlord's Notice") at the time that Landlord determines, as aforesaid, that an RFO Premises will become available for lease and that all Superior Rights in such RFO Premises, if any, have lapsed unexercised or have been irrevocably waived. Landlord's Notice shall set forth the exact location of the RFO Premises, Landlord's designation of the Fair Market Rental Value (as defined in Article 29.15 hereof) applicable to the RFO Premises, the Specified Commencement Date in respect of the RFO Premises, and the Termination Date in respect of such RFO Premises, as hereinafter defined. Tenant shall have the right, exercisable upon written notice ("Tenant's Exercise Notice") given to Landlord within twenty (20) days after the receipt of Landlord's Notice, to lease the RFO Premises. If Tenant fails timely to give Tenant's Exercise Notice, Tenant shall have no further right to lease such RPO Premises pursuant to this Article 29.16, unless such RFO Premises again becomes available for lease to Tenant after the occupancy of the next tenant to lease such RFO Premises. Upon the timely giving of such notice, Landlord shall lease and demise to Tenant and Tenant shall hire and take from Landlord, such RFO Premises, upon all of the same terms and conditions of the Lease except as hereinafter set forth.

D. *Lease Provisions Applying to RFO Premises*

The leasing to Tenant of each RFO Premises shall be upon all of the same terms and conditions of the Lease applicable to the premises initially demised to Tenant ("Existing Premises"), except as follows:

(1) Term Commencement Date

The Term Commencement Date in respect of such RFO Premises shall be the later of: (x) the Specified Commencement Date in respect of such RFO Premises as set forth in Landlord's Notice, or (y) the date that Landlord delivers such RFO Premises to Tenant. If the Term Commencement Date in respect of an RFO Premises does not occur on or before the date five (5) months after the Specified Commencement Date in respect of such RFO Premises, then Tenant shall have the right to cancel the exercise of its right to lease such RFO Premises by giving written notice ("RFO Cancellation Notice") to Landlord. If the Term Commencement Date in respect of such RFO Premises does not occur on or before the date thirty (30) days after Landlord receives such RFO Cancellation Notice, then Tenant's exercise of its right to lease such RFO Premises shall be void and without force or effect, and neither party shall have any further obligation to the other party with respect to Tenant's attempted exercise of its right to lease such RFO Premises. If the Term Commencement Date in respect of such RFO Premises occurs on or before the date thirty (30) days after Landlord receives such RFO Cancellation Notice, then such RFO Cancellation Notice shall be void and without force or effect.

(2) Rent Commencement Date

The Rent Commencement Date in respect of such RFO Premises shall be the Term Commencement Date in respect of such RFO Premises.

(3) Termination Date

The Termination Date in respect of such RFO Premises shall be the date specified in Landlord's Notice, which shall be no earlier than the later of: (i) the termination date ("Offered Termination Date") which Landlord intends, in good faith, to offer to lease such RFO Premises to the market, and (ii) the then Termination Date of the Existing Premises ("Existing Termination Date"). The Offered Termination Date shall not be earlier than three (3) years after the Term Commencement Date in respect of such RFO Premises or later than five (5) years after the Term Commencement Date in respect of such RFO Premises, provided however that the Offered Termination Date may be as late as seven (7) years after the Term Commencement Date in respect of such RFO Premises if Landlord, in its sole discretion, offers a tenant improvement allowance in connection with the demise of such RFO Premises which exceeds $40.00 per square foot of Total Rentable Area of such RFO Premises.

(4) Yearly Rent

The Yearly Rent rental rate in respect of such RFO Premises shall be based upon the Fair Market Rental Value, as defined and determined in accordance with Articles 29.15A and 29.15B hereof, of such RFO Premises as of the Term Commencement Date in respect of such RFO Premises.

(5) Condition of RFO Premises; Landlord Contribution

Tenant shall take such RFO Premises "as is" in its then (i.e. as of the date of premises delivery) state of construction, finish, and decoration, without any obligation on the part of Landlord to construct or prepare any RFO Premises for Tenant's occupancy, unless Landlord, at its sole election, intends in good faith to offer to perform such work in connection with its attempts to lease such RFO Premises. Landlord shall have no obligation to provide any Landlord Contribution or other funding to Tenant towards the cost of preparing such RFO Premises for Tenant's occupancy, unless either: (i) the Offered Termination Date is later than the date five (5) years after the Term Commencement Date in respect of such RFO Premises, as more particularly set forth in clause (3) above, or (ii) Landlord, at its sole election, intends, in good faith, to offer a Landlord Contribution to the market in connection with its attempts to lease such RFO Premises.

E. *Execution of Lease Amendments*

Notwithstanding the fact that Tenant's exercise of the above described option to lease RFO Premises shall be self executing, as aforesaid, the parties hereby agree promptly to execute a lease amendment reflecting the addition of an RFO Premises, except that the Yearly Rent payable in respect of such RFO Premises may not be as set forth in such Amendment. At the time that such Yearly Rent is determined, the parties shall execute a written agreement confirming the same. The execution of such lease amendment shall not be deemed to waive any of the conditions to Tenant's exercise of the herein option to lease the RFO Premises, unless otherwise specifically provided in such lease amendment.

F. In addition to Tenant's above-described option to lease RFO Premises, Landlord agrees advise Tenant during the term of the Lease as to all spaces in the Building that Landlord expects to become available for lease to Tenant, as defined in Article 29.16A. Tenant shall not be deemed to have been granted any right to lease any premises in the Building pursuant to this Article 29.16F (the parties hereby acknowledging that the purposes of Landlord's advice pursuant to this Article 29.16F is to provide Tenant with current information).

29.17 Antenna Area

Tenant shall have the right to use the Antenna Area, as hereinafter defined, to install, maintain and use up to an aggregate of three satellite dishes antenna or other telecommunication devices (collectively, including associated wires and the like, referred to as "Antenna") for a period commencing as of the date that Tenant installs the Antenna in the Antenna Area ("Term Commencement Date in respect of the Antenna Area") and terminating as of termination of the term of the Lease of the premises initially demised to Tenant. The "Antenna Area" shall be an

area on the roof of the Building shown as "Antenna Area" on Exhibit 6 attached hereto. Tenant shall be permitted to use the Antenna Area solely for Antenna facilities installed in accordance with specifications approved by Landlord in advance (which approval shall not be unreasonably withheld, conditioned or delayed) utilizing a frequency or frequencies and transmission power identified in such approved specifications which Tenant will be installing in the Antenna Area and no other frequencies or transmission power shall be used by Tenant without Landlord's prior written consent. Such installation shall be designed in such manner as to be easily removable and so as not to damage the roof of the Building. The Antenna and any replacement shall be subject to Landlord's approval (which approval shall not be unreasonably withheld, conditioned or delayed). Tenant's use of the Antenna Area shall be upon all of the conditions of the Lease, except as follows:

A. Tenant shall have no obligation to pay Yearly Rent, Tax Share, or Operating Cost Share in respect of the Antenna Area.

B. Landlord shall have no obligation to provide any services to the Antenna facilities.

C. Tenant shall have no right to make any changes, alterations, signs, decoration, or other improvements (which changes, alterations, signs, decoration or other improvements, together with the Antenna, are hereby collectively referred to as "Rooftop Installations") to the Antenna Area (other than installing the Antenna) without Landlord's prior written consent, which consent Landlord may hold it its sole discretion.

D. Tenant shall have no right of access to the roof of the Building unless Tenant has given Landlord reasonable advance notice and unless Tenant's representatives are accompanied by a representative of Landlord. Landlord shall provide Tenant with 24-hour access to the Antenna Area, subject to Landlord's reasonable security procedures and restrictions based on emergency conditions and to other causes beyond Landlord's reasonable control. Tenant shall give Landlord reasonable advance written notice of the need for access to the Antenna Area (except that such notice may be oral in an emergency), and Landlord must be present during any entry by Tenant onto the Antenna Area. Each notice for access shall be in the form of a work order referencing the lease and describing, as applicable, the date access is needed, the name of the contractor or other personnel requiring access, the name of the supervisor authorizing the access/work, the areas to which access is required, the Building common elements to be impacted (risers, electrical rooms, etc.) and the description of new equipment or other Rooftop Installations to be installed and evidence of Landlord's approval thereof. In the event of an emergency, such notice shall follow within five (5) days after access to the Antenna Area.

E. At the expiration or prior termination of Tenant's right to use the Antenna Area, Tenant shall remove all Rooftop Installations (including, without limitation, the Antenna) from the Antenna Area.

F. Tenant shall be responsible for the cost of repairing any damage to the roof of the Building caused by the installation or removal of any Rooftop Installations.

G. Tenant shall have no right to sublet the Antenna Area separate from a sublease of the premises, or portion thereof, which is permitted pursuant to the provisions of this Lease.

H. No other person, firm or entity (including, without limitation, other tenants, licensees or occupants of the Building) shall have the right to benefit from the services provided by the Antenna other than Tenant and Tenant's permitted assignees and subtenants.

I. In the event that Landlord performs repairs to or replacement of the roof, Tenant shall, if and to the extent necessary for such repairs or replacements, at Tenant's cost, remove the Antenna until such time as Landlord has completed such repairs or replacements. Tenant recognizes that there may be an interference with Tenant's use of the Antenna in connection with such work. Landlord shall use reasonable efforts to complete such work as promptly as possible and to perform such work in a manner which will minimize or, if reasonably possible, eliminate any interruption in Tenant's use of the Antenna.

J. Any services required by Tenant in connection with Tenant's use of the Antenna Area or the Antenna shall be installed by Tenant, at Tenant's expense, subject to Landlord's prior approval, which approval shall not be unreasonably withheld, conditioned or delayed.

K. To the maximum extent permitted by law, all Rooftop Installations in the Antenna Area shall be at the sole risk of Tenant, and Landlord shall have no liability to Tenant in the event that any Rooftop Installations are damaged for any reason (except, subject to Article 19, to the extent arising from the negligence or willful misconduct of Landlord or Landlord's contractors (including subcontractors or agents).

L. Tenant shall take the Antenna Area "as-is" in the condition in which the Antenna Area is in as of the Term Commencement Date in respect of the Antenna Area.

M. Tenant shall comply with all applicable laws, ordinances and regulations in Tenant's use of the Antenna Area and the Antenna.

N. Landlord shall have the right, upon thirty (30) days notice to Tenant, to require Tenant to relocate the Antenna Area to another area ("Relocated Rooftop Area") on the roof of the Building suitable for the use of Rooftop Installations. In such event, Tenant shall, at Landlord's cost and expense, on or before the thirtieth (30th) day after Landlord gives such notice, relocate all of its Rooftop Installations from the Antenna Area to the Relocated Rooftop Area.

O. In addition to complying with the applicable construction provisions of the Lease, Tenant shall not install or operate Rooftop Installations in any portion of the Antenna Area until (x) Tenant shall have obtained Landlord's prior written approval, which approval will not be unreasonably withheld or delayed, of Tenant's plans and specifications for the placement and installation of the facilities, if any, connecting the Rooftop Installations in the premises, and (y) Tenant shall have obtained and delivered to Landlord copies of all required governmental and quasi-governmental permits, approvals, licenses and authorizations necessary for the lawful installation, operation and maintenance of the Rooftop Installations. The parties hereby acknowledge and agree, by way of illustration and not limitation, that Landlord shall have the right to withhold its approval of Tenant's plans and specifications hereunder, and shall not be deemed to be unreasonable in doing so, if Tenant's intended placement or method of installation or operation of the Rooftop Installations (i) may subject other licensees, tenants or occupants of the Building, or other surrounding or neighboring landowners or their occupants, to signal interference, Tenant hereby acknowledging that a shield may be required in order to prevent such interference, (ii) does not minimize to the fullest extent practicable the obstruction of the views from the windows of the Building that are adjacent to the Rooftop Installations, if any, (iii) does not complement (in Landlord's sole judgment, which shall not, however, require Tenant to incur unreasonable expense) the design and finish of the Building, (iv) may damage the structural integrity of the Building or the roof thereof, or (v) may constitute a violation of any consent, approval, permit or authorization necessary for the lawful installation of the Rooftop Installations.

P. In addition to the indemnification provisions set forth in the Lease which shall be applicable to the Antenna Area, Tenant shall, to the maximum extent permitted by law, indemnify, defend, and hold Landlord, its agents, contractors and employees harmless from any and all claims, losses, demands, actions or causes of actions suffered by any person, firm, corporation, or other entity arising from Tenant's use of the Antenna Area, except, subject to Article 19, to the extent caused by the negligence or willful misconduct of Landlord or Landlord's contractors (including subcontractors) or agents.

Q. Landlord shall have the right to designate or identify the Rooftop Installations with or by a lease or license number (or other marking) and to place such number (or marking) on or near such Rooftop Installations.

29.18 Rooftop Mechanical Area

A. Without additional charge, except as set forth in this Article 29.18, Tenant, at its cost, shall be permitted to install, maintain and use heating, cooling and ventilating equipment ("HVAC Equipment") on the roof of the Building in the location shown on Exhibit 6. Tenant shall not install the HVAC Equipment without obtaining Landlord's prior written approval, which approval shall not be unreasonably withheld. If at any time Landlord, in its sole discretion, deems it necessary, Tenant shall provide and install, at Tenant's sole cost and expense, appropriate aesthetic screening, reasonably satisfactory to Landlord, for the HVAC Equipment (the "Screening"). The HVAC Equipment, its appurtenances and Screening, if any, shall be installed in accordance with the terms of this Lease (including, without limitation, Articles 12 and 13 hereof) and Landlord's approval of the precise location of the

HVAC Equipment (if not installed in the location shown on Exhibit 6) on the roof of the Building (such area on the roof, as shown on Exhibit 6 or as otherwise approved by Landlord, being referred to herein as the "Rooftop Mechanical Area"), the manner in which the HVAC Equipment is lifted to, and installed on, the roof of the Building, and the manner in which the HVAC Equipment is connected to the premises (which approval shall not be unreasonably withheld, conditioned or delayed).

B. Landlord agrees that Tenant, upon reasonable prior written notice to Landlord, shall have access to the roof of the Building and the Rooftop Mechanical Area for the purpose of installing, maintaining, repairing and removing the HVAC Equipment, the appurtenances and the Screening, if any, all of which shall be performed by Tenant or Tenant's authorized representative or contractors, which shall be approved by Landlord, at Tenant's sole cost and risk. It is agreed, however, that only authorized engineers, employees or properly authorized contractors of Tenant, or persons under their direct supervision, will be permitted to have access to the roof of the Building and the Rooftop Mechanical Area. Tenant further agrees to exercise firm control over the people requiring access to the roof of the Building and the Rooftop Mechanical Area in order to keep to a minimum the number of people having access to the roof of the Building and the Rooftop Mechanical Area and the frequency of their visits.

C. Tenant shall be responsible for the cost of all electricity consumed in connection with the operation of the HVAC Equipment and for the cost of installing a submeter, if required by Landlord, to measure such electrical consumption. Tenant, at its sole cost and expense, shall procure and maintain in full force and effect, a contract (the "Service Contract") for the service, maintenance, repair and replacement of the HVAC Equipment with a HVAC service and maintenance contracting firm reasonably acceptable to Landlord. Tenant shall follow all reasonable recommendations of said contractor for the maintenance, repair and replacement of the HVAC Equipment. The Service Contract shall provide that the contractor shall perform inspections of the HVAC Equipment at intervals of not less than three (3) months and that having made such inspections, said contractor shall furnish a complete report of any defective conditions found to be existing with respect to the HVAC Equipment, together with any recommendations for maintenance, repair and/or replacement thereof. Said report shall be furnished to Tenant with a copy to Landlord.

D. The installation, maintenance, operation and removal of the HVAC Equipment, the appurtenances and the Screening, if any, is not permitted to damage the Building or the roof thereof, or interfere with the use of the Building and roof by Landlord. Tenant agrees to be responsible for any damage caused to the roof or any other part of the Building, which may be caused by Tenant or any of its agents or representatives. Tenant agrees to maintain all of the Tenant's HVAC Equipment placed on or about the roof or in any other part of the Building in proper operating condition and maintain same in satisfactory condition as to appearance and safety, as reasonably determined by Landlord. Such maintenance and operation shall be performed in a manner to avoid any interference with Landlord. Tenant agrees that at all times during the Term, it will keep the roof of the Building and the Rooftop Mechanical Area free of all trash or waste materials produced by Tenant or any Tenant Entities or contractors.

E. The HVAC Equipment, appurtenances, and Screening, if any, shall remain the property of Tenant until the expiration or earlier termination of this Lease, at which time they shall become the property of Landlord; provided, however, that Landlord may, at Landlord's option, which option shall be exercised by Landlord at the time that Landlord approves Tenant's plans therefor, require the Tenant, at Tenant's expense, to remove the HVAC Equipment, appurtenances and/or Screening at the expiration or sooner termination of the term of this Lease and restore the affected area(s) to the condition they were in prior to installation of such items, ordinary wear and tear excepted, including, without limitation, the patching of any holes in the roof membrane to match, as closely as possible, the color surrounding the area where the HVAC Equipment, appurtenances and Screening were attached. Landlord agrees to make such election at the time that Landlord approves Tenant's plans for such installations, etc., if Tenant requests in writing that Landlord make such election at the time that Tenant requests Landlord's approval of such installations, etc. If Tenant fails to remove such items and/or perform such restoration work required pursuant to this Article 29.18E, Landlord shall be entitled to do so, at Tenant's cost.

F. Tenant must provide Landlord with prior written notice of any installation, removal or repair on the roof of the Building and coordinate such work with Landlord in order to avoid voiding or otherwise adversely affecting any warranties granted to Landlord with respect to the roof. If necessary, Tenant, at its sole reasonable cost and expense, shall retain any contractor having a then existing warranty in effect on the roof to perform such work (to the extent that it involves the roof), or, at Tenant's option, to perform such work in conjunction with

Tenant's contractor. If Landlord contemplates roof repairs that could affect Tenant's HVAC Equipment, Landlord shall formally notify Tenant at least thirty (30) days in advance (except in cases of an emergency) prior to the commencement of such contemplated work in order to allow Tenant to make other arrangements for such service.

G. Tenant specifically acknowledges and agrees that the terms and conditions of Article !6 of this Lease shall apply with full force and effect to the Rooftop Mechanical Area.

29.19 Parking

During the term of the Lease, the Landlord will make available to Tenant thirty-two (32) monthly parking passes (and if the premises are expanded, one (1) additional parking space for each 1,000 rentable square feet of the expansion space) for use in the One Kendall Square Garage ("OKS Garage"). Tenant shall have no right to sublet, assign, or otherwise transfer said parking passes except in connection with a permitted assignment of this Lease or a permitted sublease of the premises or a portion thereof. The rate for such passes during the term of the Lease shall be as follows:

Lease Year 1:	$200.00 per space per month
Lease Year 2:	$205.00 per space per month
Lease Year 3:	$210.00 per space per month
Lease Year 4:	$215.00 per space per month
Lease Year 5:	$220.00 per space per month

During the extension option as set forth in Article 29.14 (if exercised by Tenant), said parking passes shall be paid for by Tenant based upon market rates then charged in the Garage and in similar garages located in the East Cambridge/Kendall Square market, as such rate may vary from time to time. If, for any reason, Tenant shall fail timely to pay the charge for said parking passes, within ten (10) days after notice from Landlord, Tenant shall have no further right to such parking passes under this Article 29.18. In addition, during any time period when Tenant is in default beyond the expiration of any applicable notice and grace periods of its obligations under the Lease, Landlord shall have the right to withdraw Tenant's use of said parking passes. Said parking passes will be on an unassigned, non-reserved basis, and shall be subject to reasonable rules and regulations from time to time in force.

[Balance of Page Intentionally Left Blank]

IN WITNESS WHEREOF the parties hereto have executed this Indenture of Lease in multiple copies, each to be considered an original hereof, as a sealed instrument on the day and year noted in Exhibit) as the Execution Date.

LANDLORD:

RB KENDALL FEE, LLC,
a Delaware limited liability company

By: RWB Kendall Square I, LLC,
a Delaware limited liability company,
its Sole Member

By: RB Kendall, LLC,
a Delaware limited liability company,
its Sole Member

By: Beal Kendall LLC,
a Massachusetts limited liability company, as Manager

By: /s/ Robert L. Beal
Name: Robert L. Beal
Title: Manager

Date Signed: 5/16/06

TENANT:

MERRIMACK PHARMACEUTICALS, INC.

By: /s/ Robert J. Mulroy
Name: Robert J. Mulroy
Title: President & CEO
Hereunto duly authorized

Date Signed: 5/15/06

IF TENANT IS A CORPORATION, A SECRETARY'S OR CLERK'S CERTIFICATE OF THE AUTHORITY AND THE INCUMBENCY OF THE PERSON SIGNING ON BEHALF OF TENANT SHOULD BE ATTACHED.

EXHIBIT 2

LEASE PLAN, SHEET 1 (Office and Laboratory Premises)

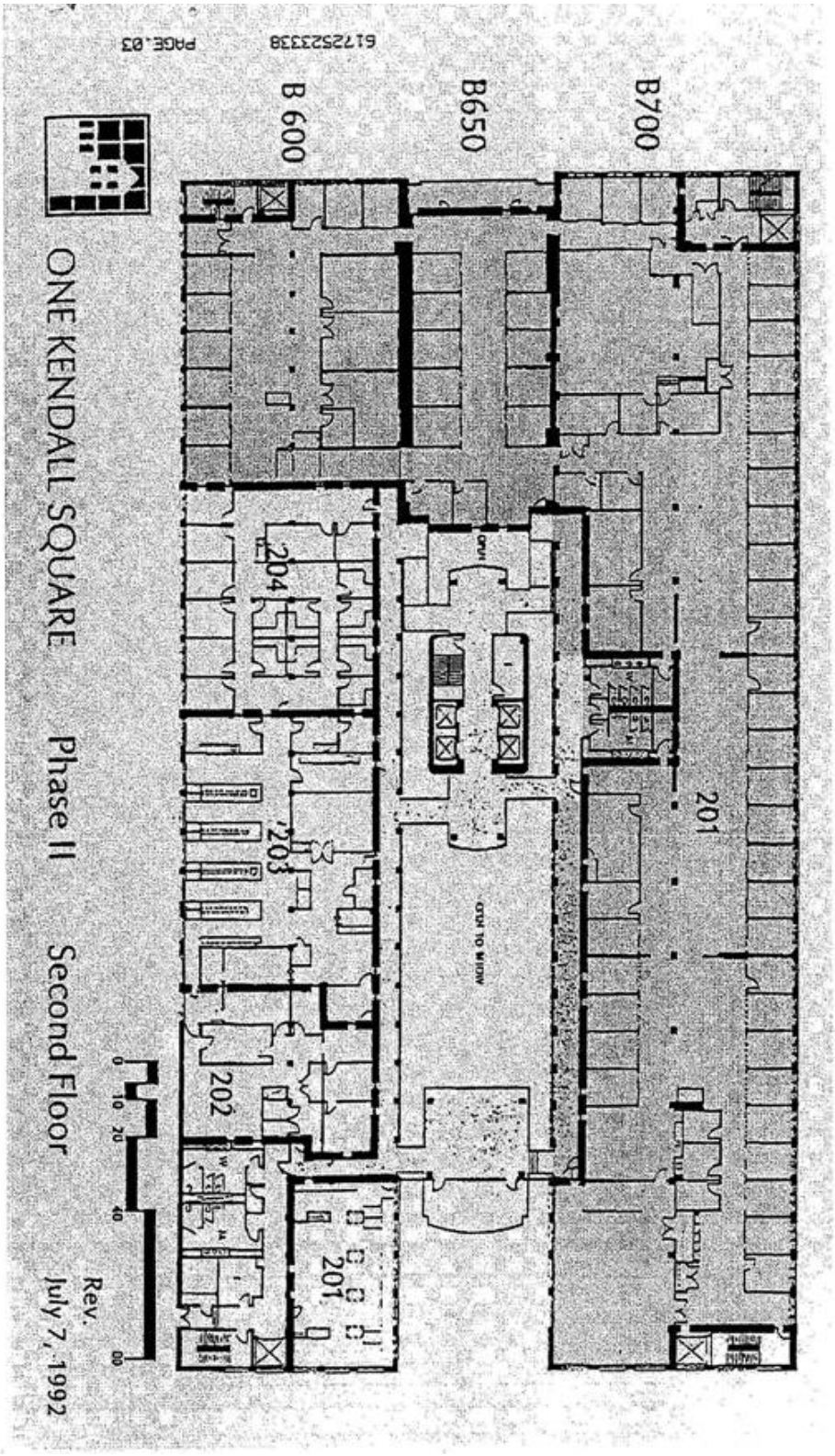


EXHIBIT 2

LEASE PLAN, SHEET 2 (Basement Premises)

EXHIBIT 2

LEASE PLAN, SHEET 2 (Basement Premises)

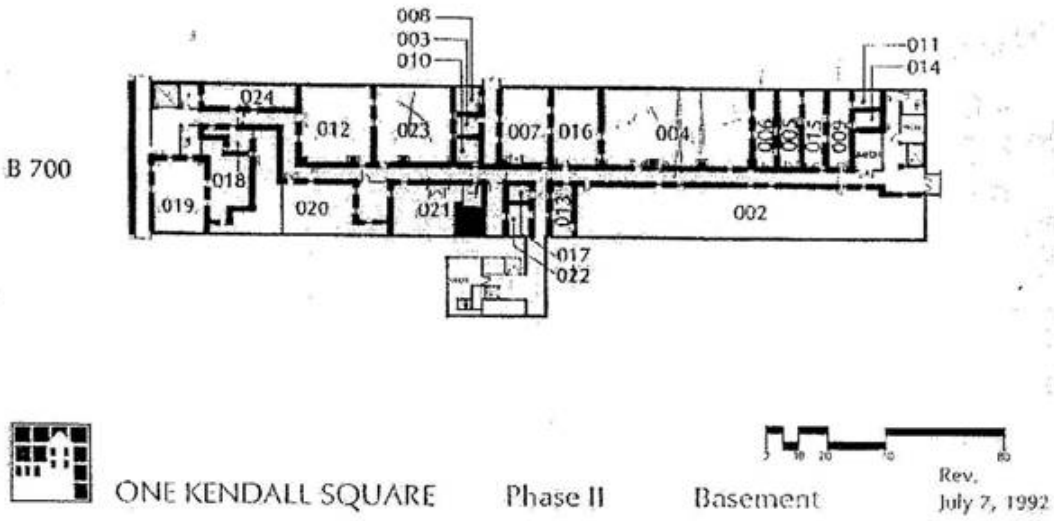


EXHIBIT 3

COMPLEX

62

EXHIBIT 3

COMPLEX

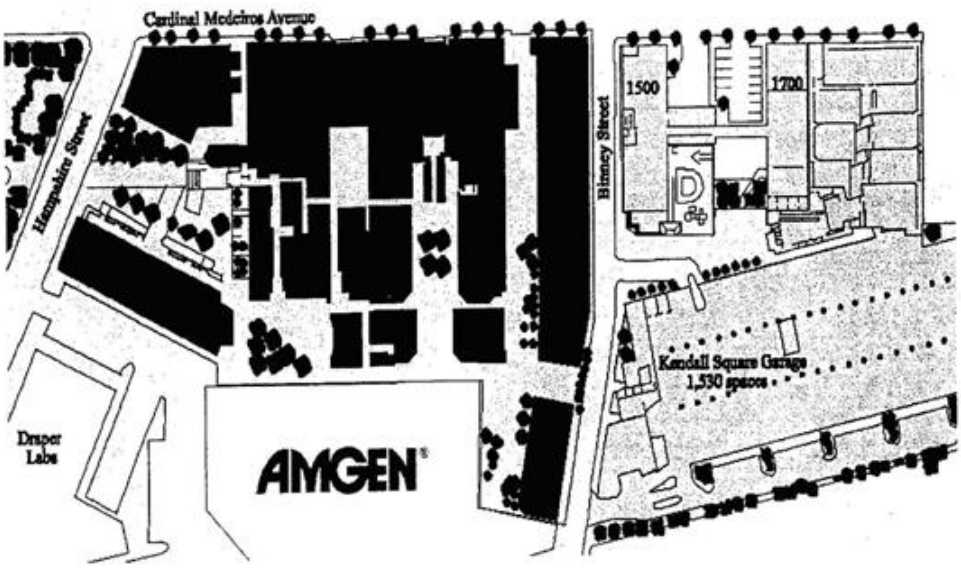


EXHIBIT 4

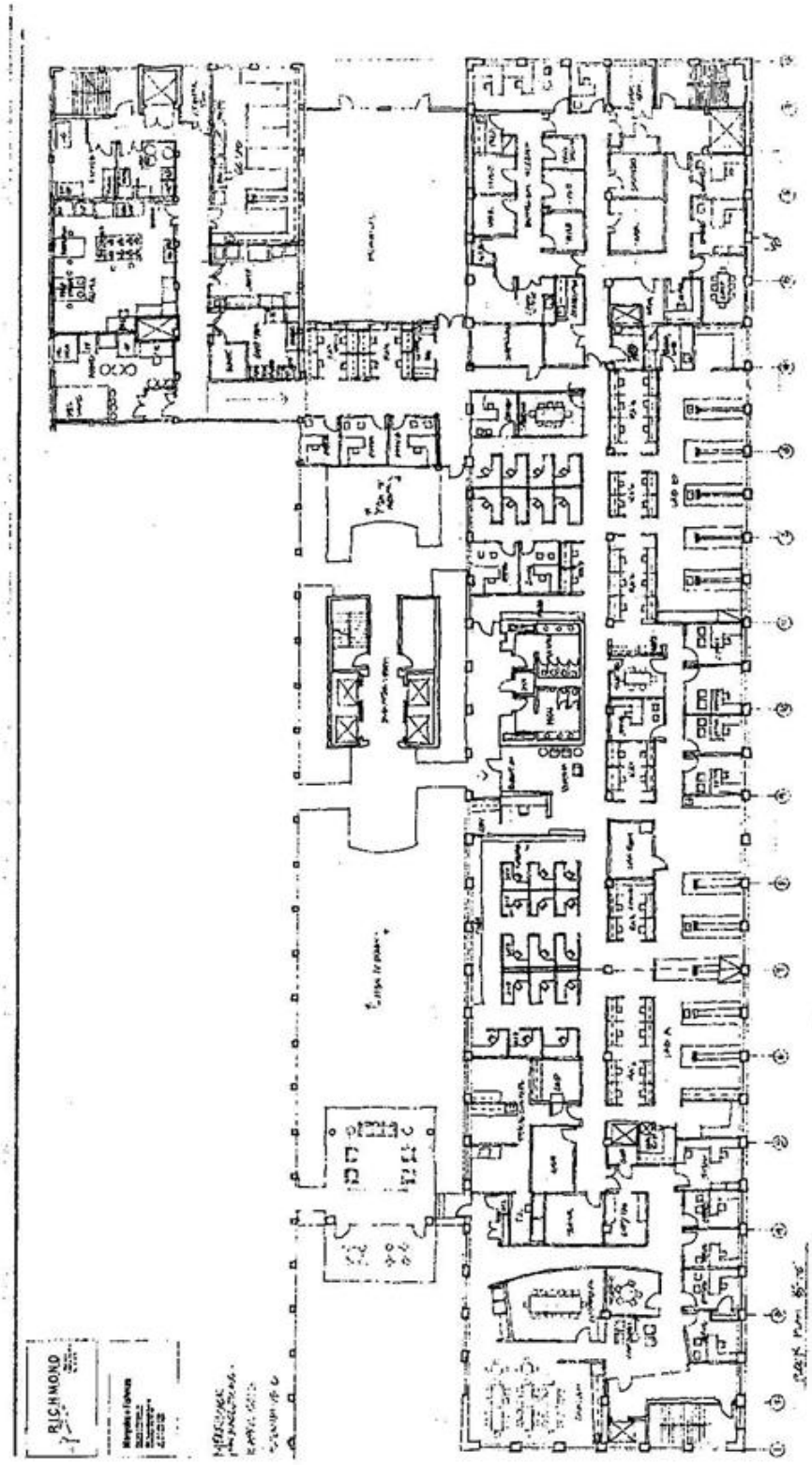


EXHIBIT 5

FORM OF LETTER OF CREDIT

BENEFICIARY:

ISSUANCE DATE:

, 200

LANDLORD
RB Kendall Fee, LLC

IRREVOCABLE STANDBY
LETTER OF CREDIT NO.

ACCOUNTEE/APPLICANT:
Merrimack Pharmaceuticals, Inc.

MAXIMUM/AGGREGATE
CREDIT AMOUNT: $378,220.00
USD: $378,220.00

LADIES AND GENTLEMEN:

We hereby establish our irrevocable letter of credit in your favor for account of the applicant up to an aggregate amount not to exceed Three Hundred Seventy-Eight Thousand Two Hundred Twenty and 00/100 US Dollars ($378,220.00) available by your draft(s) drawn on ourselves at sight accompanied by:

Your statement, signed under the pains of perjury by a purportedly authorized officer/official certifying that the Beneficiary is entitled to draw upon this Letter of Credit (in the amount of the draft submitted herewith) pursuant to the Lease (the "Lease") dated May 12, 2006 by and between RB Kendall Fee, LLC, as Landlord, and Merrimack Pharmaceuticals, Inc., as Tenant.

Draft(s) must indicate name and issuing bank and credit number and must be presented at this office.

You shall have the right to make partial draws against this Letter of Credit, from time to time.

Funds will be made available to Beneficiary on the same day as a sight draft is presented by Beneficiary.

This Letter of Credit is transferable without charge to you at any time and from time to time and may be transferred in its entirety only. In the event of a transfer, we reserve the right to require reasonable evidence of such transfer as a condition to any draw hereunder. Any such transfer is to be effective at the counters of and is contingent upon:

A. The satisfactory completion of our transfer form attached hereto; and

B. The return of the original of this Letter of Credit and all amendments thereto for endorsement thereon by us to the transferee.

This Letter of Credit shall expire at our office on , 200 (the "Stated Expiration Date"). It is a condition of this Letter of Credit that the Stated Expiration Date shall be deemed automatically extended without amendment for successive one (1) year periods from such Stated Expiration Date, unless at least forty-five (45) days prior to such Stated Expiration Date, or any anniversary thereof) we shall notify you and the Accountee/Applicant in writing by registered mail (return receipt) that we elect not to consider this Letter of Credit extended for any such additional one (I) year period. In addition to the foregoing, we understand and agree that you shall be entitled to draw upon this Letter of Credit as set forth above in the event that we elect not

to renew this Letter of Credit and, in addition, you provide us with a dated statement signed under the pains of perjury by a purportedly authorized officer/official of Beneficiary stating that the Applicant has failed to provide you with a substitute irrevocable standby letter of credit in accordance with the terms of the above-referenced Lease.

We expressly agree and acknowledge that we shall not refuse to pay on any draw permitted under this Letter of Credit in the event that the Accountee/Applicant opposes, contests or otherwise attempts to interfere with any attempt by Landlord to draw down from said Letter of Credit.

Except as otherwise expressly stated herein, this Letter of Credit is subject to the "Uniform Customs and practice for Documentary Credits, International Chamber of Commerce, Publication No. 500 (1993 Revision)".

EXHIBIT 6
LOCATION OF ANTENNA AREA AND ROOFTOP MECHANICAL AREA

TO BE ATTACHED AFTER LEASE EXECUTION

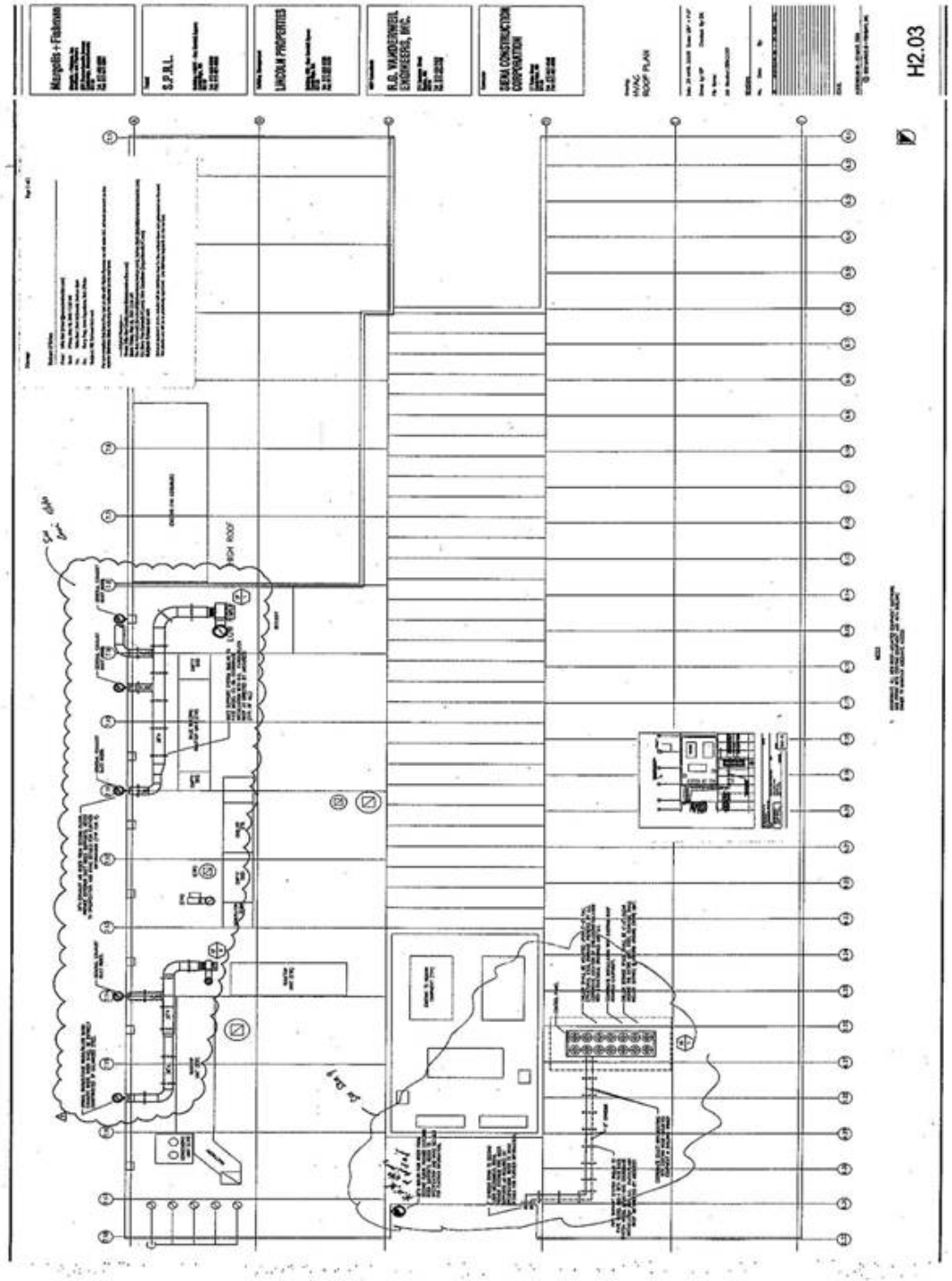


EXHIBIT 7

LIST OF MATERIALS

INITIAL HAZARDOUS MATERIALS:

Potassium Phosphate Dibasic	5 kg
Potassium Phosphate monobasic	5 kg
Sodium Phosphate Dibasic	5 kg
Sodium Phosphate monobasic	5 kg
Tris base	5 kg
NaCI	5 kg
KCI	5 kg
NaOH	5 kg
KOH	5 kg
Sodium Bicarbonate	5 kg
Ammonium sulfate	5 kg
calcium chloride	5 kg
magnesium chloride	5 kg
manganese chloride	1 kg
copper sulfate	1 kg

Acetic acid	4 liter
HCI	2 liter
Nitric Acid	2 liter
Ethanolamine	1 liter
Dimethyl sulfoxide	1 liter
Chloroform	1 liter
Acetone	2 liter
Ethanol	10 liter
Methanol	10 liter
Isopropanol	4 liter
propane gas	40 lbs
Phenol	0.5 liter
Glycerol	1 liter
Glucose	5 kg
Glycine	5 kg
sodium citrate	5 kg

ADDITIONAL HAZARDOUS MATERIALS:

Tenant is also authorized to store and use small quantities of research reagents (chemicals used in the development and testing of compounds with potential clinical applications), the disposal of which shall be subject to all applicable regulations of MWRA and all other Environmental Laws.

Tenant may modify the foregoing list to delete existing items or include additional items that would be covered by the existing permits, upon the delivery of required notices to the MWRA and/or the Cambridge Fire Department and Landlord and compliance with all Environmental Laws.

EXHIBIT 8

TENANT'S REMOVABLE PROPERTY

Hoods - BioSafety Cabinets

Portable Steam Generator

Autoclaves

Dishwashers

Imaging Equipment

NOTE: Each such item shall only be deemed to be Tenant's Removable Property if Tenant has fully paid for such item with its own funds (i.e. if any of the above items have been paid for out of the Landlord's Contribution, such items will not be considered as part of Tenant's Removable Property and shall remain in the premises at the expiration or earlier termination of the Lease).

EXHIBIT 9

INTENTIONALLY OMITTED

EXHIBIT 10

ENVIRONMENTAL ASSESSMENT REPORT

See "Phase I Environmental Site Assessment" prepared by GEI Consultants dated January 16, 2006.

EXHIBIT 11

EXHIBIT 11

DECOMMISSIONING REPORT

ONYX ENVIRONMENTAL SERVICES

ONYX

"We Deliver Preferred Solutions"

March 15, 2006

Barry Pray
Lincoln Property Company
One Kendall Square
Building 400, 2nd Floor
Cambridge, MA 02139

Dear Mr. Pray,

ONYX Environmental Services, LLC was pleased to provide you with decommissioning services at your facility located at One Kendall Square in Cambridge, MA. Listed below is a timeline and brief description of the all work completed by ONYX (as referenced in our Master Service Agreement).

Laboratory Surfaces Decontamination – March 9th, 2006

ONYX provided a service team to decontaminate all chemically exposed surfaces in the laboratory spaces formerly occupied by Dalanod. This included: benches, fume hoods, walls, floors, inside of drawers and chemical storage areas (stock rooms, waste storage areas, etc.). The decontamination of these surfaces was accomplished with a bleach and water solution - any associated cleanup debris was packaged for disposal as part of a final Lab Pack/Waste Shipment.

The following manifests reflect final waste shipment of cleanup debris and other material that were left behind:

- Manifest # MWB11604 Medical Waste
- Manifest # NJA502254 Various Lab Pack Chemicals

Thank you for utilizing ONYX for your on-site services needs. Should you require any additional information please do not hesitate to contact me at 508-804-4804.

Sincerely,

Matthew Rotolo
Account Manager

ONYX Environmental Services, LLC
The Grist Building
Marlborough, MA 01752
www.onyxes.com

VEOLIA ENVIRONMENTAL SERVICES

FIRST AMENDMENT OF LEASE

THIS FIRST AMENDMENT OF LEASE is made this 23 day of March, 2007, by and between **RB KENDALL FEE, LLC** ("**Landlord**") and **MERRIMACK PHARMACEUTICALS, INC.**, having a mailing address at One Kendall Square, Building 600/700, Cambridge, Massachusetts 02139 ("**Tenant**").

R E C I T A L S:

A. Reference is made to an Indenture of Lease dated May 12, 2006, by and between Landlord, and Tenant (the "**Lease**") demising approximately 31,747 s.f. of rentable square feet of space on a portion of the second floor and approximately 132 s.f. of rentable space in the basement of the Building 600/700 at One Kendall Square, Cambridge, Massachusetts. Capitalized terms used but not defined herein shall have the same meaning as in the Lease.

B. Landlord and Tenant are the current holders, respectively, of the lessor's and lessee's interests in the Lease.

C. Landlord and Tenant now desire to amend the Lease as set forth herein.

A G R E E M E N T S:

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Landlord and Tenant hereby agree to amend the Lease as follows:

1. Notwithstanding anything in the Lease to the contrary, Tenant shall, for the Term of the Lease only, as same may be extended pursuant to Section 29.14 of the Lease, have the exclusive license to use the Storage Space (approximately 98 s.f.) in the basement of Building 600/700 at One Kendall Square, Cambridge, Massachusetts as shown as unit #1 on the plan attached hereto as Exhibit A-l ("Storage Space"), for the storage of Tenant's personal property and effects relating to its permitted use of the premises under the Lease and for no other purpose(s). Except as otherwise provided herein. Tenant's use of the Storage Space shall be subject to all of the terms and conditions of the Lease. Tenant agrees to pay to Landlord, in advance and as additional rent under the Lease without demand, offset or deduction, at the same time as monthly installments of Yearly Rent are due under the Lease, a license fee equal to $89.83 per month during each month of the Term. In the event of the termination or expiration of the Lease. Tenant's license to use the Storage Space, if not already terminated or expired, shall immediately terminate without any further notice or demand. Tenant agrees that it is taking the Storage Space "as-is", in the condition in which the Storage Space is in as of the date hereof, without any obligation on the part of Landlord to prepare or construct the Storage Space for Tenant's occupancy and without any warranty or representation by Landlord as to the condition of the Storage Space or its fitness for any use or purpose. Tenant shall keep neat and clean and maintain in good order, condition and repair, the Storage Space excepting only damage by fire or other casualty or as a consequence of the exercise of the power of eminent domain and reasonable wear and tear and Tenant shall surrender the Storage Space at the expiration of the Lease, unless sooner terminated, in such condition, free of all personal property and effects. Tenant shall maintain and use the Storage Space in accordance with all Federal, State, County and Municipal laws, rules, orders and regulations. Tenant acknowledges and agrees that Landlord shall have no obligation to provide cleaning or other services to the Storage Space. In addition to the other

termination rights set forth in the Lease, either party shall have the right to terminate this license to use the Storage Space upon not less than thirty (30) days written notice to the other party, and upon such termination Tenant shall surrender the Storage Space as set forth above.

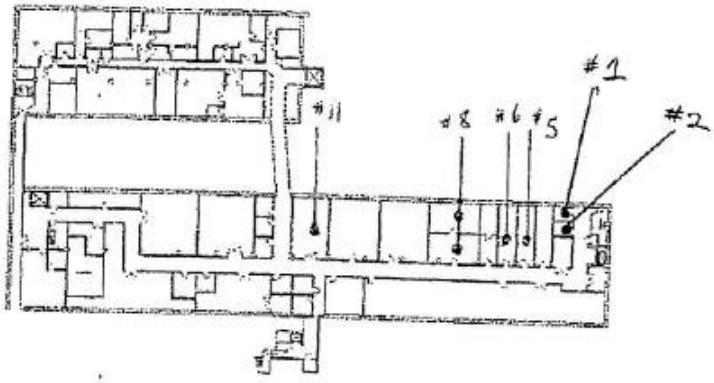
2. Landlord and Tenant each warrant and represent to the other that they have dealt with no brokers in connection with the negotiation or consummation of this First Amendment and in the event of any brokerage claim against either party by any person claiming to have dealt with either Landlord or Tenant in connection with this First Amendment, the party with whom such person claims to have dealt shall defend and indemnify the other party against such claim.

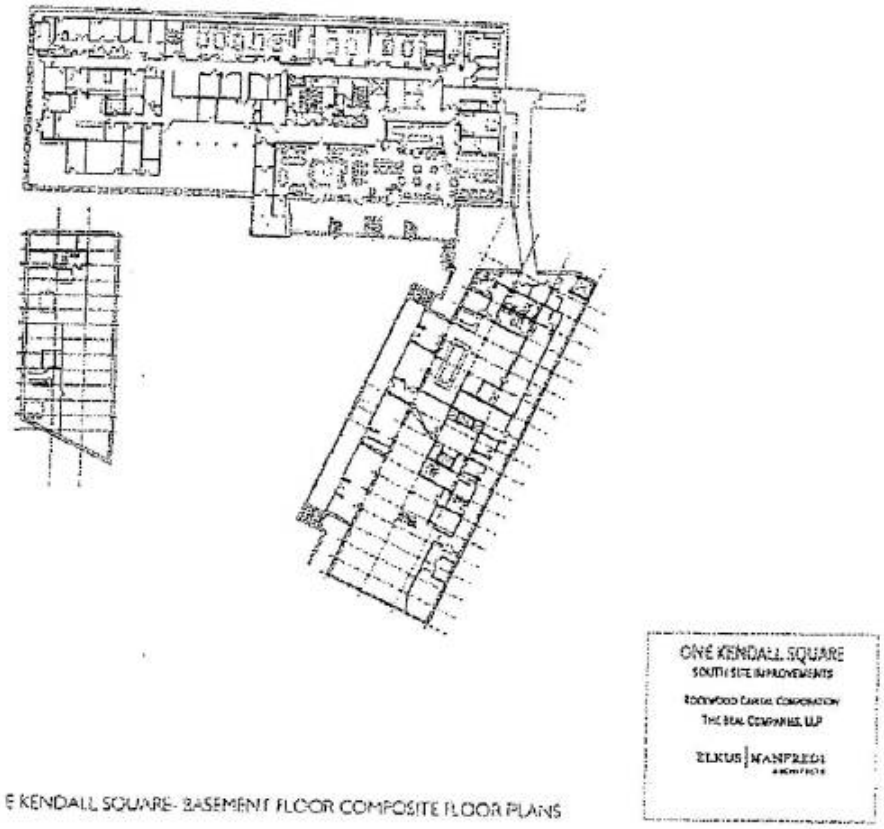
3. In all other respects the Lease shall remain unmodified and shall continue in full force and effect, as amended hereby. The parties hereby ratify, confirm, and reaffirm all of the terms and conditions of the Lease, as amended hereby.

IN WITNESS WHEREOF the parties hereto have executed this First Amendment of Lease on the date first written above in multiple copies, each to be considered an original hereof, as a sealed instrument.

LANDLORD:	**TENANT:**
RB KENDALL FEE, LLC,	MERRIMACK PHARMACEUTICALS, INC.,
a Delaware limited liability company	a Massachusetts corporation
By: /s/ Robert Beal	By: /s/ Sophia Namis
Robert L. Beal, its authorized signatory	Name: Sophia Namis
	Title: Director of Finance

EXHIBIT A-1





E KENDALL SQUARE- BASEMENT FLOOR COMPOSITE FLOOR PLANS

SECOND AMENDMENT OF LEASE

THIS SECOND AMENDMENT OF LEASE is made as of this 1st day of July, 2007 (the "**Effective Date**"), by and between **RB KENDALL FEE, LLC** ("**Landlord**") and **MERRIMACK PHARMACEUTICALS, INC.**, having a mailing address at One Kendall Square, Building 6001700, Cambridge, Massachusetts 02139 ("**Tenant**").

R E C I T A L S:

A. Reference is made to an Indenture of Lease dated May 12,2006, by and between Landlord and Tenant, as amended by a certain First Amendment of Lease dated March 23, 2007 (the **"Lease"**), demising approximately 31,747 s.f. of rentable square feet of space on a portion of the second floor and approximately 230 s.f. of rentable space in the basement of the Building 6001700 at One Kendall Square, Cambridge, Massachusetts. Capitalized terms used but not defined herein shall have the same meaning as in the Lease.

B. Landlord and Tenant are the current holders, respectively, of the lessor's and lessee's interests in the Lease.

C. Landlord and Tenant now desire to amend the Lease as set forth herein.

A G R E E M E N T S:

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Landlord and Tenant hereby agree to amend the Lease as follows:

1. Notwithstanding anything in the Lease to the contrary, Tenant shall, effect beginning on the Effective Date and for the Term of the Lease only, as same may be extended pursuant to Section 29.14 of the Lease, have the exclusive license to use the Storage Space (approximately 1,234 s.f.) in the

basement of Building 6001700 at One Kendall Square, Cambridge, Massachusetts as shown as unit #2 on the plan attached hereto as Exhibit A-1 ("Storage Space"), for the storage of Tenant's personal property and effects relating to its permitted use of the premises under the Lease and for no other purpose(s). Except as otherwise provided herein, Tenant's use of the Storage Space shall be subject to all of the terms and conditions of the Lease. Tenant agrees to pay to Landlord, in advance and as additional rent under the Lease without demand, offset or deduction, at the same time as monthly installments of Yearly Rent are due under the Lease, a license fee equal to $1,131.17 per month during each month of the Term. In the event of the termination or expiration of the Lease, Tenant's license to use the Storage Space, if not already terminated or expired, shall immediately terminate without any further notice or demand. Tenant agrees that it is taking the Storage Space "as-is", in the condition in which the Storage Space is in as of the date hereof, without any obligation on the part of Landlord to prepare or construct the Storage Space for Tenant's occupancy and without any warranty or representation by Landlord as to the condition of the Storage Space or its fitness for any use or purpose. Tenant shall keep neat and clean and maintain in good order, condition and repair, the Storage Space excepting only damage by fire or other casualty or as a consequence of the exercise of the power of eminent domain and reasonable wear and tear and Tenant shall surrender the Storage Space at the expiration of the Lease, unless sooner terminated, in such condition, free of all personal property and effects. Tenant shall maintain and use the Storage Space in

accordance with all Federal, State, County and Municipal laws, rules, orders and regulations. Tenant acknowledges and agrees that Landlord shall have no obligation to provide cleaning or other services to the Storage Space. In addition to the other termination rights set forth in the Lease, either party shall have the right to terminate this license to use the Storage Space upon not less than thirty (30) days written notice to the other party, and upon such termination Tenant shall surrender the Storage Space as set forth above.

2. Landlord and Tenant each warrant and represent to the other that they have dealt with no brokers in connection with the negotiation or consummation of this Second Amendment and in the event of any brokerage claim against either party by any person claiming to have dealt with either Landlord or Tenant in connection with this Second Amendment, the party with whom such person claims to have dealt shall defend and indemnify the other party against such claim.

3. In all other respects the Lease shall remain unmodified and shall continue in full force and effect, as amended hereby. The parties hereby ratify, confirm, and reaffirm all of the terms and conditions of the Lease, as amended hereby.

IN WITNESS WHEREOF the parties hereto have executed this Second Amendment of Lease on the date first written above in multiple copies, each to be considered an original hereof, as a sealed instrument.

LANDLORD:

RB KENDALL FEE, LLC,

a Delaware limited liability Company

By: /s/ Robert L. Beal
Robert L. Beal, its authorized signature

TENANT:

MERRIMACK PHARMACEUTICALS, INC.,

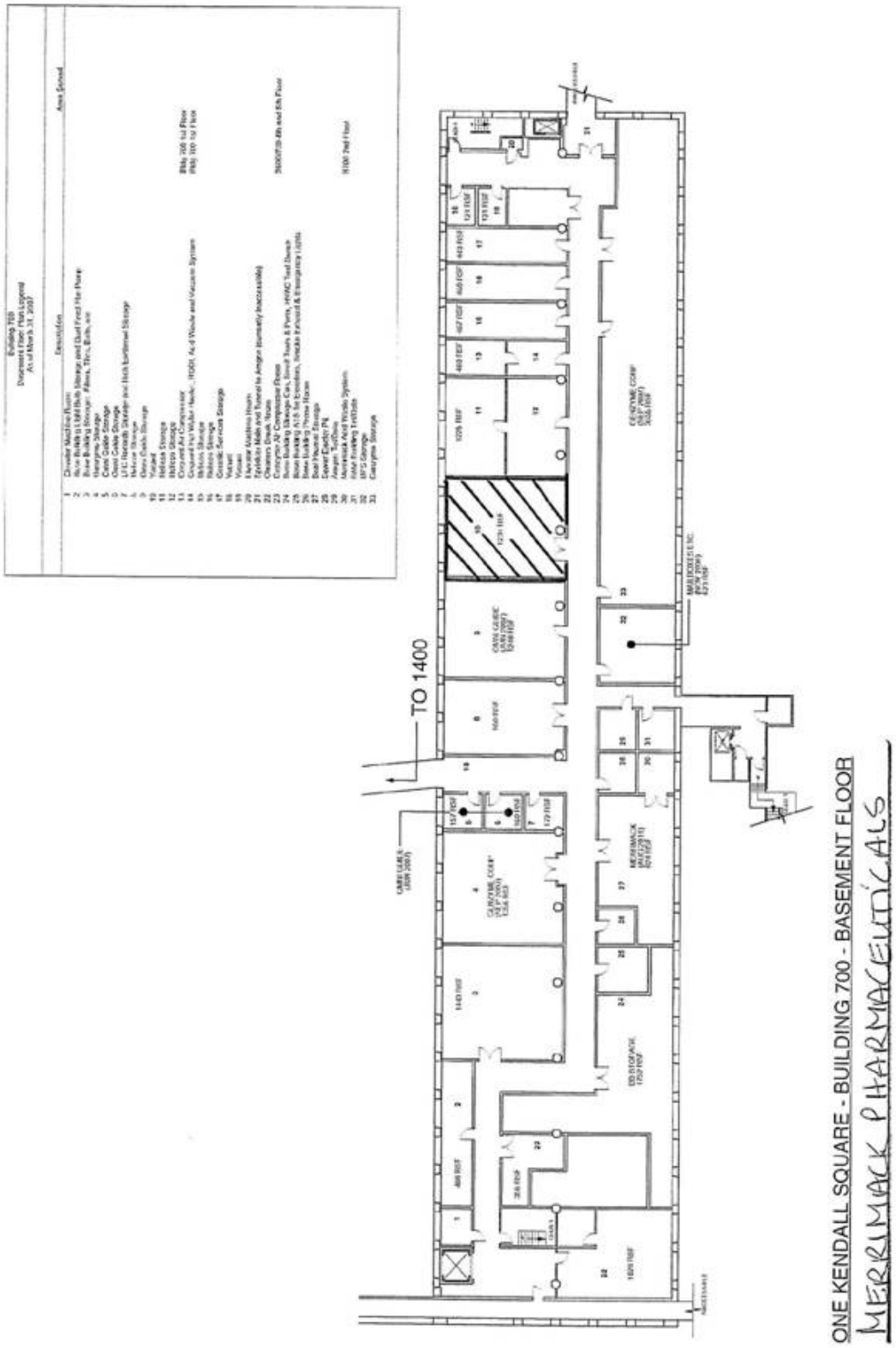
a Massachusetts corporation

By: /s/ Lisa A. Evren
Name: Lisa A. Evren
Title: SVP and CFO

EXHIBIT A-l

STORAGE SPACE PLAN

See attached.



Execution

THIRD AMENDMENT OF LEASE

THIS THIRD AMENDMENT OF LEASE is made as of this 1st day of April, 2008, by and between **RB KENDALL FEE, LLC ("Landlord")** and **MERRIMACK PHARMACEUTICALS, INC.**, having a mailing address at One Kendall Square, Building 600/700, Cambridge, Massachusetts 02139 ("**Tenant**").

BACKGROUND:

A. Reference is made to an Indenture of Lease dated May 12, 2006, by and between Landlord and Tenant, as amended by (i) First Amendment of Lease dated March 23, 2007, and (ii) Second Amendment of Lease dated as of July 1, 2007 (collectively, the "**Lease**"), demising approximately 31,747 rentable square feet of space on a portion of the second floor of Building 600/650/700 (the "**Lab/Office Space**") and approximately 1,464 s.f. of rentable space in the basement of Building 600/650/700 (the "**Storage Space**") in One Kendall Square, Cambridge, Massachusetts (the "**Complex**"). Capitalized terms used but not defined herein shall have the same meaning as in the Lease.

B. Landlord and Tenant are the current holders, respectively, of the lessor's and lessee's interests in the Lease.

C. Landlord and Tenant now desire to amend the Lease as set forth herein.

AGREEMENTS:

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Landlord and Tenant hereby agree to amend the Lease as follows:

1. Additional Storage Space. Notwithstanding anything in the Lease to the contrary, and in addition to the Storage Space, Tenant shall, commencing on April 1, 2008 (the "**Effective Date**") and for the Term of the Lease only, as same may be extended pursuant to Section 29.14 of the Lease, have the exclusive license to use as storage space approximately 930 r.s.f. in the basement of Building 700 at the Complex as shown cross-hatched on the plan attached hereto as Exhibit A-l (the "**Additional Storage Space**"), for the storage of Tenant's personal property and effects relating to its permitted use of the premises under the Lease and for no other purpose(s). Except as otherwise provided herein, Tenant's use of the Additional Storage Space shall be subject to all of the terms and conditions of the Lease. As of the Effective Date, Tenant agrees to pay to Landlord, in advance and as additional rent under the Lease without demand, offset or deduction, at the same time as monthly installments of Yearly Rent are due under the Lease, a license fee equal to $930.00 per month during each month of the Term. In the event of the termination or expiration of the Lease, Tenant's license to use the Additional Storage Space, if not already terminated or expired, shall immediately terminate without any further notice or demand.

2. "As-Is". Tenant agrees that it is taking the Additional Storage Space "as-is", in the condition in which the Additional Storage Space is in as of the date hereof, without any obligation on the part of Landlord to prepare or construct the Additional Storage Space for Tenant's occupancy and without any warranty or representation by Landlord as to the condition of the Additional Storage Space or its fitness for any use or purpose. Tenant shall keep neat and clean and maintain in good order, condition

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and repair, the Additional Storage Space excepting only damage by fire or other casualty or as a consequence of the exercise of the power of eminent domain and reasonable wear and tear and Tenant shall surrender the Additional Storage Space at the expiration of the Lease, unless sooner terminated, in such condition, free of all personal property and effects. Tenant shall maintain and use the Additional Storage Space in accordance with all Federal, State, County and Municipal laws, rules, orders and regulations. Tenant acknowledges and agrees that Landlord shall have no obligation to provide cleaning or other services to the Additional Storage Space. In addition to the other termination rights set forth in the Lease, either party shall have the right to terminate this license to use the Additional Storage Space upon not less than thirty (30) days written notice to the other party, and upon such termination Tenant shall surrender the Additional Storage Space as set forth above.

3. Brokers. Landlord and Tenant each warrant and represent to the other that they have dealt with no brokers in connection with the negotiation or consummation of this Third Amendment other than Beal and Company, Inc., and in the event of any brokerage claim against either party by any person claiming to have dealt with either Landlord or Tenant in connection with this Third Amendment, the party with whom such person claims to have dealt shall defend and indemnify the other party against such claim.

4, Ratification. In all other respects the Lease shall remain unmodified and shall continue in full force and effect, as amended hereby. The parties hereby ratify, confirm, and reaffirm all of the terms and conditions of the Lease, as amended hereby.

[Signatures on Following Page]

IN WITNESS WHEREOF the parties hereto have executed this Third Amendment of Lease on the date first written above in multiple copies, each to be considered an original hereof, as a sealed instrument.

LANDLORD:

RB KENDALL FEE, LLC,

a Delaware limited liability company

By: /s/ Robert L. Beal
Robert L. Beal, its authorized signatory

TENANT:

MERRIMACK PHARMACEUTICALS, INC.,

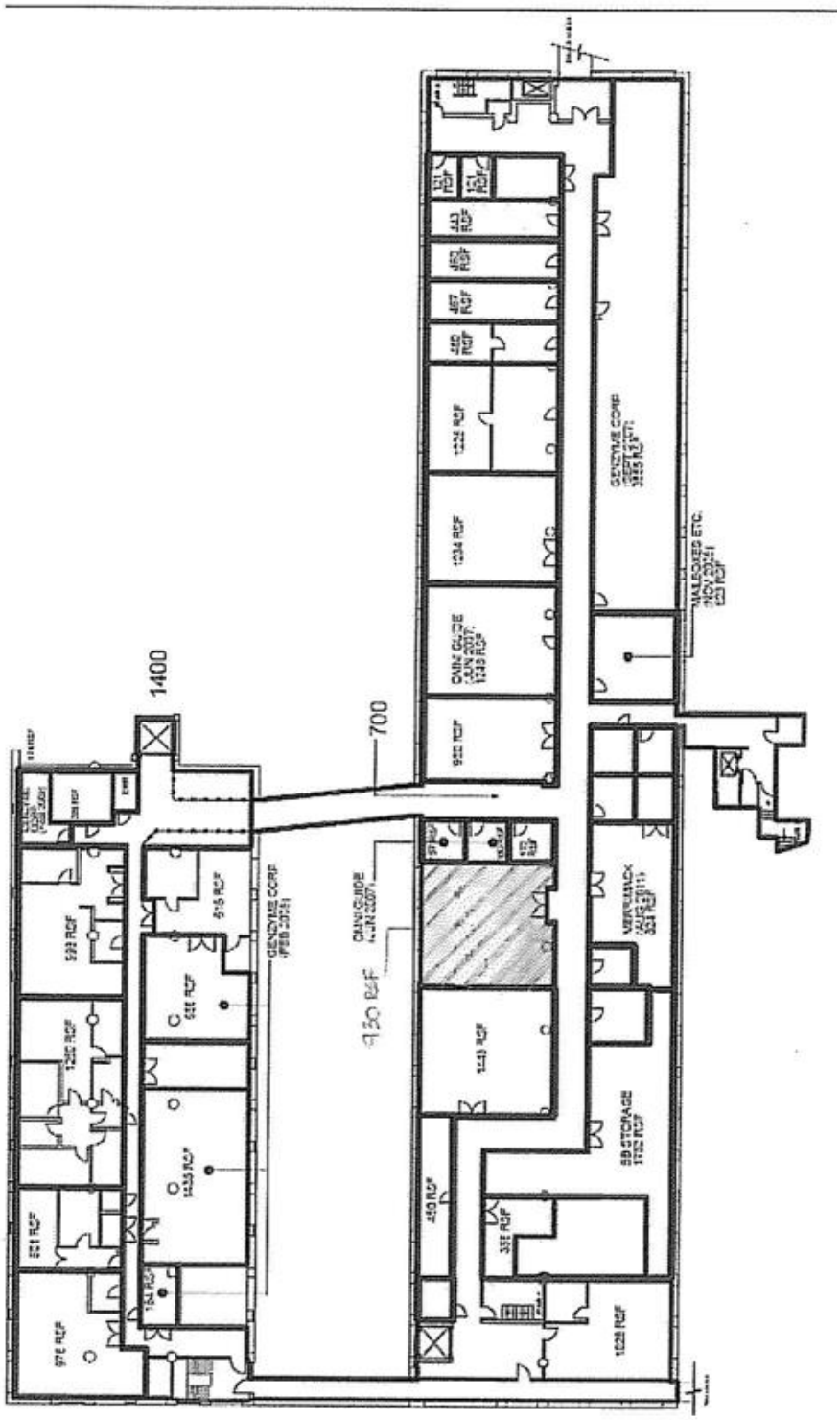
a Massachusetts corporation

By: /s/ Lisa A. Evren
Name: Lisa A. Evren
Title: SVP and CFO

EXHIBIT A-l

STORAGE SPACE PLAN

See attached.



FOURTH AMENDMENT OF LEASE

THIS FOURTH AMENDMENT OF LEASE (the "Fourth Amendment") is made this 17 day of November, 2008 (the "Effective Date") by and between **RB KENDALL FEE, LLC** ("Landlord") and **MERRIMACK PHARMACEUTICALS, INC.**, having a mailing address at One Kendall Square, Building 600/700, Cambridge, Massachusetts 02139 ("Tenant").

BACKGROUND:

A. Reference is made to a certain Lease dated May 12, 2006 by and between Landlord and Tenant as amended by (i) First Amendment of Lease dated March 23, 2007, (ii) Second Amendment of Lease dated as of July 1, 2007, and (iii) Third Amendment of Lease dated as of April 1, 2008 (collectively, the "Lease"), demising approximately 31,747 rentable square feet of space on a portion of the second floor and approximately 132 rentable square feet of space in the basement of Building 600/650/700 (the "Existing Premises") and approximately 2,262 s.f. of rentable space in the basement of Building 600/650/700 (the "Storage Space") in One Kendall Square, Cambridge, Massachusetts (the "Complex"). Capitalized terms used but not defined herein shall have the same meaning as in the Lease.

B. Landlord and Tenant are the current holders, respectively, of the lessor's and lessee's interests in the Lease.

C. Landlord and Tenant want to expand the premises demised under the Lease to include additional space within Building 600 in the Complex and to further to amend the Lease as set forth herein.

AGREEMENTS:

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Landlord and Tenant hereby agree and amend the Lease as follows:

1. Expansion Space. a. Upon the Expansion Space Effective Date (as described below), (a) the space on the fourth (4th) floor of Building 600 shown as "Area A" on the plan attached hereto as Exhibit A-1 ("Expansion Space A") and (b) the space on the fourth (4th) floor of Building 600 shown as "Area B" on the plan attached hereto as Exhibit A-1 ("Expansion Space B"). respectively, shall be deemed added to and incorporated into the premises demised under the Lease. (Expansion Space A and Expansion Space B are sometimes referred to collectively as the "Expansion Space".) The Expansion Space contains 18,748 rentable square feet of floor area. Upon the Expansion Space Effective Date, all references to the premises in the Lease shall include the Expansion Space and all references to Exhibit A in the Lease shall be deemed to include and refer to Exhibit A-1, as applicable. The Expansion Space shall be delivered free of all occupants, personal property, trade fixtures and equipment, except as set forth in Section 5, below, and shall be delivered to Tenant in "as-is", "where-is" condition without any warranty of fitness for use or occupancy, expressed or implied, subject to Landlord's obligation to complete Landlord's Work (as defined below) as provided in Section 6 below. Except for Landlord's Work, and subject to Landlord's maintenance and repair obligations provided in the Lease, Tenant agrees that Landlord has no work to perform in or on the Expansion Space to prepare same for Tenant's use and occupancy. From and after the Expansion Space Effective Date (as defined below), all references in the Lease to the "Premises" shall mean, as the context shall require, the Existing Premises, Storage Space and Expansion Space, collectively.

b. Expansion Space Effective Date. The "Expansion Space Effective Date" shall be the earlier of (i) that date which is ninety (90) days after the completion of Landlord's Work, and (ii) the date on which Tenant occupies any portion of the Expansion Space for business purposes; provided, however, that if Landlord fails to complete Landlord's Work and deliver the Expansion Space to Tenant, all in accordance with this Fourth Amendment, on or before April 1, 2009 (the "Termination Date"), then Tenant shall have the right, at Tenant's election, to terminate this Fourth Amendment only upon written notice to Landlord given no later than April 15, 2009, and upon such termination, Landlord shall execute and deliver such documents as may be reasonably required to effect the termination of the Letter of Credit (as defined in Section 9 below) and all rights and obligations of the parties under this Fourth Amendment shall terminate, In the event of such termination the terms of the Lease, exclusive of this Fourth Amendment, shall remain in full force and effect. In the event that Tenant does not elect to terminate this Fourth Amendment as aforesaid, Tenant shall receive a per diem abatement of Yearly Rent payable with respect to the Expansion Space for each day by which the completion of Landlord's Work extends beyond the Termination Date. Upon request, Landlord and Tenant agree to execute a supplemental agreement confirming the actual Expansion Space Effective Date once the same is determined. Notwithstanding the foregoing, the Termination Date shall be extended by one (1) day for each day of delay, if any, in the completion of Landlord's Work due to Tenant's presence in the Expansion Space prior to the Expansion Space Effective Date (as permitted in Section 7 below).

2. Term. a. The term of the Lease with respect to the Expansion Space shall commence on the Expansion Space Effective Date and shall expire at midnight on that day which is three (3) years after the Expansion Space Effective Date (the "Expansion Space Termination Date"), unless otherwise terminated pursuant to the terms and conditions of the Lease.

b. The term of the Lease with respect to the Existing Premises and the Storage Space (the "Existing Premises/Storage Space Extension Term") is hereby extended for that period beginning on September 1, 2011 and ending on the Expansion Space Termination Date, unless otherwise terminated pursuant to the terms and conditions of the Lease.

c. Notwithstanding the foregoing, it is expressly understood and agreed that Tenant shall have the right to further extend the term of the Lease with respect to the Existing Premises, Storage Space and Expansion Premises for one Additional Term of five (5) years in accordance with the provisions of Section 29.14 of the Lease; provided, however, that (i) Section 29.14A is hereby revised to provide that (A) the Additional Term shall commence as of the day immediately following the Expansion Space Termination Date (the "Additional Term Commencement Date") and shall expire on the day immediately prior to the fifth (5th) anniversary of the Additional Term Commencement Date and (B) the Extension Notice shall be given by Tenant, if at all, no later than nine (9) months prior to the Additional Term Commencement Date; and (ii) the second sentence of Section 29.14B shall be revised to read in its entirety as follows: "Landlord shall upon written request from Tenant, made on or after the date which is twelve (12) months prior to the Additional Term Commencement Date, advise Tenant of Landlord's offer ("Landlord's Offer") as to the Yearly Rent which will be payable by Tenant during the Additional Term within fifteen (15) days after Landlord receives such request from Tenant."

3. Yearly Rent. a. Expansion Space. Commencing on the Expansion Space Effective Date and continuing through and including the Expansion Space Termination Date, the Yearly Rent for the Expansion Space shall be as set forth in the table below. For purposes of this Fourth Amendment, a Lease Year is a period of twelve (12) consecutive months, commencing on the Expansion Space Commencement Date and each successive twelve (12) month period during the term of the Lease, except that if the Expansion Space Commencement Date shall occur on a date other than the first day of a month, then the first Lease Year shall include the period of the Expansion Space Commencement Date to the first

day of the following month and twelve (12) calendar months thereafter.

Period	Yearly Rent	Monthly Rent	Rent Per Rentable Square Foot
Lease Year 1	$ 768,668.00	$ 64,055.67	$ 41.00
Lease Year 2	$ 787,416.00	$ 65,618.00	$ 42.00
Lease Year 3	$ 806,164.00	$ 67,180.33	$ 43.00

The Yearly Rent for the Expansion Space shall be payable in accordance with the terms of the Lease and shall be in addition to the Yearly Rent and all other amounts due and payable by Tenant pursuant to the Lease. Tenant's obligation to pay Taxes, Operating Costs, utilities and parking expenses for the Expansion Space shall commence on the Expansion Space Commencement Date.

b. Existing Premises. Commencing on September 1, 2011 and throughout the Existing Premises/Storage Space Extension Terra, the Yearly Rent with respect to the Existing Premises shall be payable at the same rate as the immediately preceding year ($1,203,952.08 per annum), payable in accordance

with the terms of the Lease.

c. Storage Space. Commencing on September 1, 2011 and throughout the Existing Premises/Storage Space Extension Term, the license fee with respect to the Storage Space shall be payable at the same rate as the immediately preceding year ($2,151.00 per month), payable in accordance with the terms of the Lease,

4. Tenant's Proportionate Shares. a. Prior to the Expansion Space Commencement Date, Tenant shall continue to pay, with respect to the Existing Premises, Tenant's Proportionate Common Area Share in the amount of 4.88% and Tenant's Proportionate Building Share in the amount of 14.08%, Commencing on the Expansion Space Commencement Date, with respect to both the Existing Premises and the Expansion Space, Tenant's Proportionate Common Area Share shall be 7.76%, and Tenant's Proportionate Building Share shall be 22.40%.

b. Tenant's Proportionate Common Area Share shall be subject to adjustment, from time to time, in accordance with the terms of Section 9.1(c) of the Lease, and the Operating Costs relating to Building 600/700 shall mean Building 600/650/700.

5. Expansion Space A Equipment. Notwithstanding anything to the contrary contained herein, Expansion Space A shall be delivered with the equipment listed on Schedule 1(a) attached hereto (the "Space A Equipment") located therein which equipment is provided to Tenant for its use during the term of the Lease. The Space A Equipment shall be delivered to Tenant in good operating condition and repair (although Landlord makes no representations or warranties of any kind or nature, express or implied, regarding the suitability of such equipment for Tenant's use). Tenant shall be responsible for all costs and expenses relating to moving, and operating the Space A Equipment and shall maintain or cause to be maintained, and return and yield-up, the Space A Equipment in the same good condition and repair as of the Expansion Space Effective Date, subject to reasonable wear and tear, and in compliance with all applicable laws and insurance requirements. For purposes of the foregoing sentence, the term "reasonable wear and tear" constitutes that normal, gradual deterioration that occurs due to aging and ordinary use of the Space A Equipment despite reasonable and timely maintenance and repairs; in no event shall

"reasonable wear and tear" excuse Tenant from its duty to keep the Space A Equipment in the condition and repair required hereunder. Tenant shall not remove the Space A Equipment from the Premises or materially modify or alter the Space A Equipment without, in each instance, obtaining Landlord's prior written consent, which consent shall not be unreasonably withheld, conditioned or delayed.

6. Landlord's Work. Landlord shall, at Landlord's sole cost and expense, complete the following work in a good and workmanlike manner using, where applicable, Landlord's building standard design and construction materials and finishes: (a) demise the Expansion Space substantially as shown on Exhibit A-1 and provide Building standard tenant entry door; (b) deliver the mechanical, electrical, and plumbing (collectively, "MEP") systems serving the Expansion Space (including without limitation any supplemental lab HVAC equipment) in good operating condition and repair, it being understood and agreed that certain existing systems will be demolished or modified as part of Landlord's Work; (c) separate the electrical system(s) such that one or more separate electrical panels shall exclusively serve the Expansion Space; and install one or more meters exclusively for the electrical system(s) serving the Expansion Space; (d) cut and remove any drain lines therein that feed into the existing acid neutralization system in the Building such that the Expansion Space shall no longer be connected to such system; (e) remove the RODT water system; (f) cause the lab areas in the Expansion Space to be decontaminated and decommissioned in accordance with applicable requirements of governmental authorities and provide Tenant with evidence, in form and substance reasonably satisfactory to Tenant (it being agreed that the decommissioning report attached hereto as Exhibit B is satisfactory as to such decommissioning obligation) of such decontamination and decommissioning; (g) remove the two (2) Trane air handlers from Expansion Space A; (h) deliver one (1) rooftop chiller in good working condition; (i) install twenty- four (24) new hung heat pumps, fully powered and tied into the Building's process loop at such locations and to such design specifications provided by Tenant's engineer and approved by Landlord (distribution from the heat pumps throughout the Expansion Space shall be Tenant's responsibility); (j) deliver the emergency generator serving the Expansion Space in good working condition (Tenant shall ensure that the generator is dedicated for Tenant's exclusive use); (k) demolish and remove all of the existing interior improvements currently located in Expansion Space B, with the exception of the closet housing the controls for the emergency generator, and deliver Expansion Space B in clean shell condition with all utilities delivered and ready for distribution (distribution throughout the Expansion Space shall be Tenant's responsibility); (I) review and repair the perimeter caulking and sealing on exterior windows as necessary, in Landlord's reasonable discretion, to provide an air and weather tight enclosure; and (m) replace with Building standard windows any windows currently covered by panels, including without limitation those covered by panels previously installed in place of louvers (collectively, (a) - (m) are the "Landlord's Work"). Landlord shall pay the costs and expenses relating to Landlord's Work. Landlord shall use commercially reasonable and diligent efforts to complete Landlord's Work as soon as reasonably practical following the execution of this Fourth Amendment by each of Landlord and Tenant, it being acknowledged and agreed that the target date for completion of Landlord's Work is January 15, 2009.

7. Tenant's Improvements: Landlord's Contribution. (a) On or before January 1, 2009, Tenant shall have access to the Expansion Space for purposes of completing Tenant's leasehold improvements thereto ("Tenant's Improvements") in accordance with the terms and conditions of the Lease (as amended hereby). Tenant shall cooperate with Landlord and coordinate the construction of Tenant's Improvements so as not to interfere with the timely completion of Landlord's Work. Prior to entering the Expansion Space, Tenant shall obtain all insurance it is required to obtain by the Lease as to the Expansion Space and shall provide certificates of said insurance to Landlord. Tenant shall coordinate such entry with Landlord's building management, and such entry shall be made in compliance with all terms and conditions of the Lease and the rules and regulations in effect from time to time. In connection with Tenant's Improvements, and in lieu of any other allowance or contribution obligation of

Landlord, including, without limitation, Article 4.2 of the Lease, Landlord shall contribute up to $787,416 ("Landlord's Contribution") in the aggregate toward the cost of Tenant's Improvements, architectural and engineering fees and other consultants' fees in connection with Tenant's Improvements, and other move related expenses relating to the Expansion Space. Landlord's Contribution shall be paid, and requests therefor shall be made, in the manner provided in Section 4.2 of the Lease, except that Sections 4.2.C(iii) and (iv) are inapplicable.

(b) Tenant's Improvements shall be effected in accordance with the terms and conditions of the Lease, including but not limited to Articles 11,12 and 13 thereof; provided, however, that any fixtures or equipment paid for directly by Tenant (but not those paid with the Landlord's Contribution) may, at Tenant's option upon prior written notice to Landlord, be removed by Tenant, at Tenant's sole cost and expense, upon the expiration or earlier termination of the term of the Lease and Tenant shall repair any damage caused by such removal. Without limiting the foregoing, Tenant shall obtain Landlord's prior written consent for all of Tenant's Improvements (and Plans and Specifications therefor [as defined below]), and the contractors, engineers, architects,

technicians and mechanics effecting same, which consent shall not be unreasonably withheld, conditioned or delayed. Tenant shall be responsible for the preparation of construction plans and specifications, including but not limited to architectural, mechanical, electrical, plumbing, life-safety and other Building systems and interfaces therewith (collectively, the "Plans and Specifications"), and any specialty engineering necessary for the completion of Tenant's Improvements, all of which shall be subject to Landlord's prior written consent, which consent shall not be unreasonably withheld, conditioned or delayed. Landlord shall be entitled to deduct from Landlord's Contribution a construction management fee for Landlord's oversight of Tenant's Improvements as provided in Section 4.2E of the Lease (subject to the "no charge" time or credits set forth therein) and all reasonable direct, out-of-pocket expenses incurred by Landlord in reviewing and approving the Plans and Specifications,

8. Additional Space Rights. Landlord shall use commercially reasonable efforts to advise Tenant as to availability from time to time of rentable space in Building 600/650/700. In addition, if, during the term of the Lease, Landlord determines to lease any portion of Building 600/650/700 to third parties (the "RFR Space"), Tenant shall have the right of first refusal on such RFR Space as expressly provided herein. Landlord shall give Tenant notice of any active negotiations (as defined below) with each specific third party for the RFR Space ("RFR Notice"). Tenant shall then have four (4) business days from the date of Tenant's receipt of Landlord's RFR Notice, with time being of the essence, to notify Landlord in writing that Tenant has elected to lease the entire RFR Space subject to, and upon the same terms and conditions as set forth in, Landlord's RFR Notice, in which event Landlord and Tenant shall proceed with the lease of such RFR Space in accordance with the terms of the RFR Notice. If Tenant declines to exercise its rights under this Section 8 with respect to such RFR Space, or if Tenant fails to respond in the time and manner expressly provided herein, Tenant shall be deemed to have waived its rights hereunder with respect to such RFR Space and this provision shall be of no further force or effect in connection therewith and Landlord shall be free to market, negotiate and lease such RFR Space upon the terms and conditions it desires; provided, however, that if the prospective tenant with whom Landlord was engaged in active negotiations at the time of the giving of the RFR Notice fails to enter into a lease for such RFR Space within six (6) months after the date of Tenant's receipt of such RFR Notice, the RFR Space shall again be subject to Tenant's right of first refusal in accordance with the provisions of this Section 8. If Tenant declines to exercise its rights under this Section 8 with respect to such RFR Space, or fails to respond in the time and manner expressly provided herein, then within ten (10) days of Landlord's request therefor, Tenant shall execute a certificate confirming its election to decline to lease such RFR Space. For purposes of this Section 8, "active negotiations" shall be deemed to exist when a prospective tenant of the RFR Space has either indicated its willingness to accept Landlord's initial proposal or has submitted a counteroffer to Landlord's initial proposal in which event the terms and

conditions of the counteroffer, if acceptable to Landlord, shall be the basis for Landlord's RFR Notice to Tenant provided hereunder. Notwithstanding anything to the contrary contained herein, Tenant understands that its rights under this Section 8 are and shall be subject and subordinate to any options to lease or any rights of expansion, first negotiation, first offer or first refusal to lease granted to other tenants of the Complex prior to the date of execution and delivery of this Fourth Amendment. Landlord agrees to provide Tenant, within thirty (30) days of the date of this Fourth Amendment, a list of the aforementioned rights to which Tenant's rights under this Section 8 shall be subordinate. In addition, Landlord shall have no obligation to give an RFR Notice to Tenant in connection with any space in Building 600/650/700 that is vacant as of the Effective Date of this Fourth Amendment or in connection with any space being renewed by an existing tenant in Building 600/650/700. Tenant shall have no right to exercise any of its rights hereunder (i) during the time commencing from the date Landlord gives to Tenant a notice of default pursuant to the Lease and continuing until the noncompliance alleged in said notice of default is cured, or (ii) during the period of any event of default under the Lease as to which no notice from Landlord is required. The period of time within which Tenant may exercise any of its rights hereunder shall not be extended or enlarged by reason of Tenant's inability to exercise any such right because of such default. Tenant's rights under this Section 8 shall be in addition to the Right of First Offer set forth in Section 29.16 of the Lease.

9. Security Deposit. Simultaneously with the execution and delivery of this Amendment, Tenant shall deliver to Landlord an Irrevocable Standby Letter of Credit ("Letter of Credit") in the form attached to the Lease as Exhibit 5, in an amount equal to One Hundred Ninety-Two Thousand One Hundred Sixty-Seven and 01/100 Dollars ($192,167.01), and otherwise in conformance with the provisions of Section 29.13 of the Lease. Such Letter of Credit shall not be subject to reduction and shall be maintained throughout the term of the Lease, as same may be extended, pursuant to the terms and conditions of this Lease.

10. Parking. Upon the Expansion Space Effective Date, Tenant shall be entitled to an additional nineteen (19) monthly parking passes available to Tenant for use in the OKS Garage pursuant to, and in accordance with, Section 29.19 of the Lease, except that the parties acknowledge and agree that the monthly charge for such passes shall be based upon market rates then charged in the OKS Garage and in similar garages located in the East Cambridge/Kendall Square market, as such rates may vary from time to time (as of the date of this Fourth Amendment the market rate is $210.00 per month).

11. Additional Rooftop Equipment Space. Landlord hereby agrees to provide to Tenant, at no additional charge, additional space on the roof of the Building subject to and in accordance with the provisions of Sections 29.17 and 29.18 of the Lease for HVAC equipment, microwave dishes, antennae and/or other communications devises which service the Expansion Space. Landlord agrees to work with Tenant in good faith to attempt to otherwise accommodate Tenant's rooftop space needs. Upon the completion of the installation of any such equipment, Landlord and Tenant shall enter into a written agreement which confirms the location of the expanded Antenna Area and Rooftop Mechanical Area.

12. Notices. For all purposes of the Lease, the notice address for Landlord shall hereafter be as follows: RB Kendall Fee, LLC, One Kendall Square, Cambridge, Massachusetts 02139. Any notices given to Landlord shall be delivered in accordance with the terms of the Leases to the foregoing address with copies to be delivered in like manner to Landlord, c/o The Beal Companies, LLP, 177 Milk Street, Boston, Massachusetts 02109, Attention: Stephen N. Faber, Senior Vice President and Peter A. Spellios, Senior Vice President and General Counsel and to Sherin and Lodgen LLP, 101 Federal Street, Boston, Massachusetts 02110, Attention: Robert M. Carney, Esquire. In addition, any notices given to Tenant shall be delivered as set forth in the Lease with a copy to Wilmer Hale LLP, 60 State Street, Boston, MA 02109, Attention: Katharine E. Bachman, Esquire.

13. Brokers. Landlord and Tenant each warrant and represent to the other that they have dealt with no brokers in connection with the negotiation or consummation of this Fourth Amendment other than Colliers Meredith & Grew and DTZ FHO Partners (collectively, the "Broker"') and in the event of any brokerage claim against either party by any person claiming to have dealt with either Landlord or Tenant in connection with this Fourth Amendment, other than the Broker, the party with whom such person claims to have dealt shall defend and indemnify the other party against such claim. Landlord shall pay any commission due the Broker pursuant to a separate agreement,

14. Reaffirmation. In all other respects the Lease shall remain unmodified and shall continue in full force and effect, as amended hereby. The parties hereby ratify, confirm, and reaffirm all of the terms and conditions of the Lease, as amended hereby.

[Signatures Appear on Following Page]

IN WITNESS WHEREOF the parties hereto have executed this Fourth Amendment to Lease on the date first written above in multiple copies, each to be considered an original hereof, as a sealed instrument.

LANDLORD:

RB KENDALL FEE, LLC

By: /s/ Robert L. Beal
Robert L. Beal, its authorized signatory

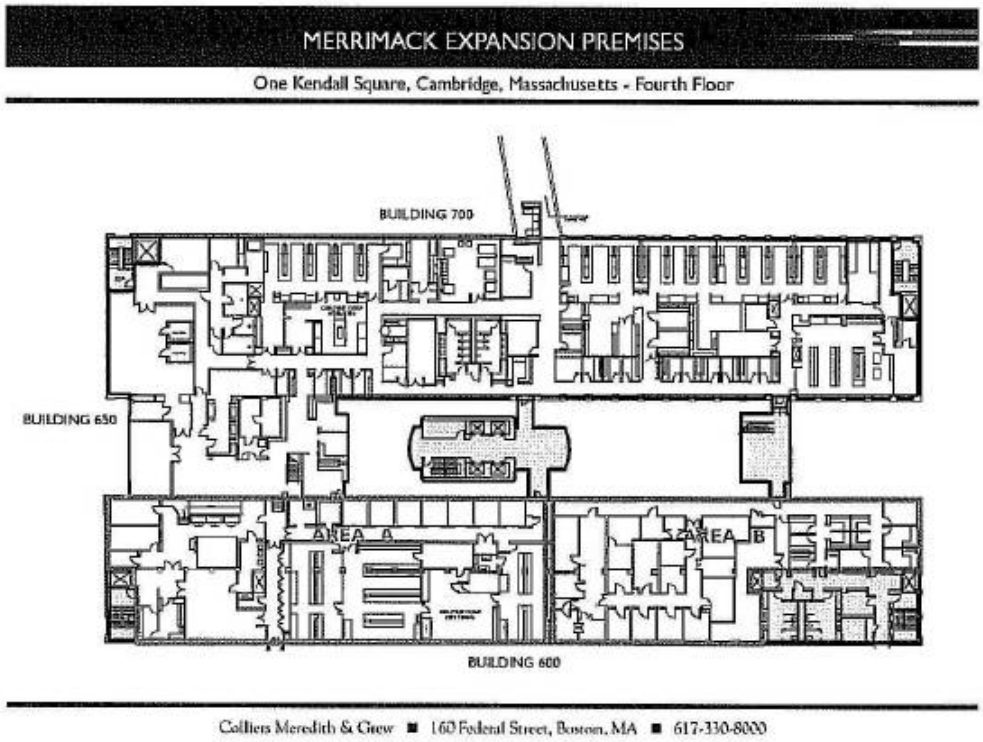
TENANT:

MERRIMACK
PHARMACEUTICALS, INC.

By: /s/ Robert J. Mulroy
Name: Robert Mulroy
Title: President and CEO

EXHIBIT A-1, FOURTH AMENDMENT

LEASE PLAN FOR EXPANSION SPACE



Schedule 1(a)

Space A Equipment

Equipment location designated by corresponding capital letters on attached plan.

1. All hoods and casework

   A. DuraLab Equipment Corp. (6’)

   B. Kewaunee (8’)

   C. DuraLab Equipment Corp. (8’)

   D. VWR Scientific Products (5’)

E. Kewaunee/VWR Scientific Products (8')

F. VWR Scientific Products (8')

G. SterilGard Hood/Baker Co., Inc. Class II, Type A/B3 (6'6")

2. Walk-in cold room measuring 10'x20' (Controlled Environment Structures, Inc.) (H)

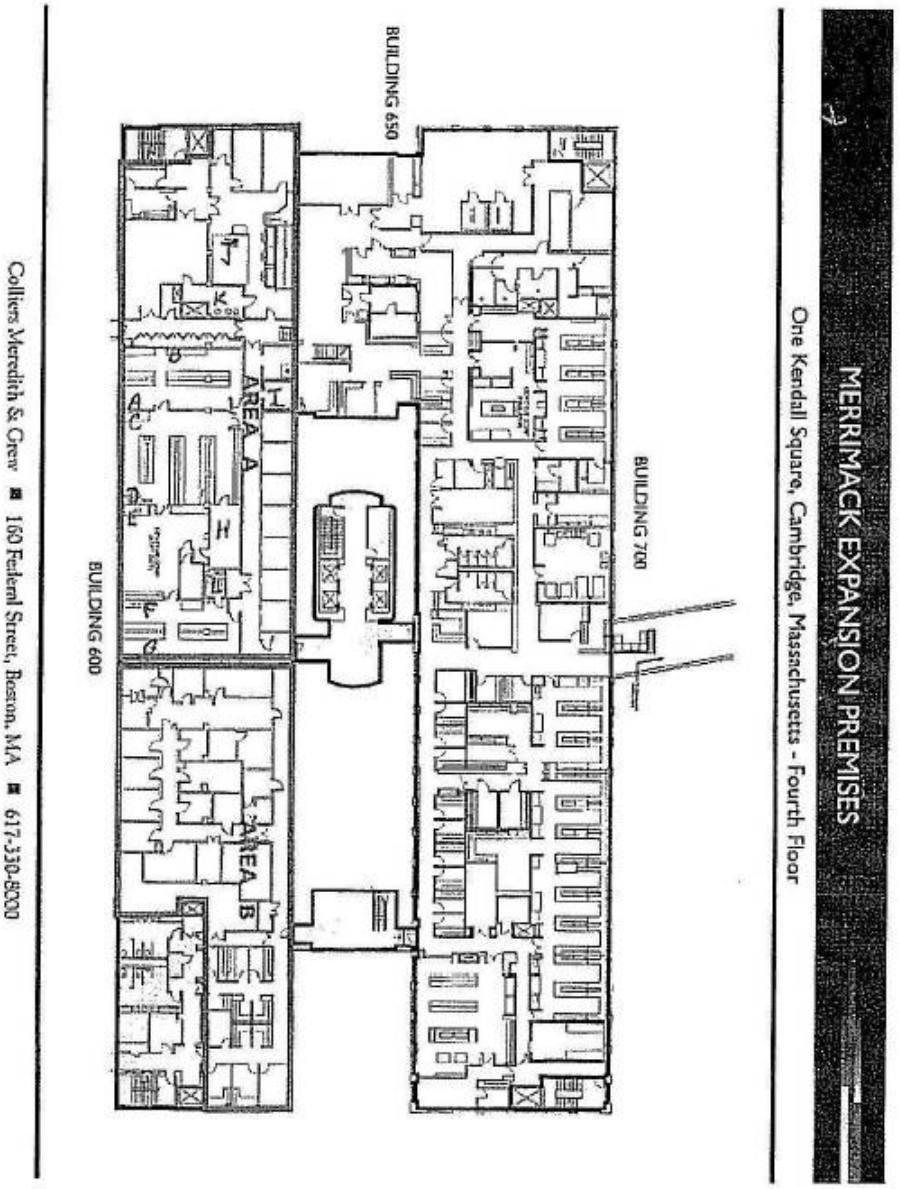
3. Walk-in cold room measuring 10'xlO' (Cargocaire/Munters) (I)

4. Walk-in cold room measuring 16'xl2' (Controlled Environment Structures, Inc.) (J)

5. PreVac System Model #PRL-20004 Serial #981258 (K)

6. Air Energy air compressor system Model #PSP023XB Serial #AE1223 (L)

Plan Showing Location of Space A



Equipment

EXHIBIT B

DECOMMISSIONING REPORT

EBI CONSULTING
Creating Value for Your Business

Laboratory Decommissioning Clean Up Verification

Genzyme
One Kendall Square
Building 600, 700 and 1400
Cambridge, Massachusetts

EBI Project # 22070218

October 1, 2007

Prepared by:

EBI Consulting
Richard G. Aichelmann, CSP, CIH
Senior Program Director

Prepared for:

Genzyme Corporation
One Kendall Square – Building 1400
Cambridge, MA 02139

EBI Consulting
Four A Street
Burlington, MA 01803
Phone: 781-273-2500
Fax: 781-273-3311

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY

EnviroBusiness, Inc (EBI) conducted an assessment of the decommissioned laboratories formerly occupied by Genzyme Corporation located on the fourth and fifth floor of Building 600, the fifth floor of Building 700 and the fifth floor of Building 1400 of One Kendall Square Cambridge, Massachusetts for the purposes of verifying cleanliness of the space with respect to the requirements established by the property owner. EBI's assessment consisted of conducting a thorough visual inspection of all laboratories, collecting wipe samples of selected surfaces for the specified contaminants and conducting air monitoring for mercury.

The results of EBI's assessment identified detectable levels of some of the specified contaminants, however, these were all found within limits that were deemed to be acceptable and no addition cleaning or remedial activities are recommended.

2.0 INTRODUCTION

Genzyme Corporation (Genzyme) - a major global biotechnology company - has occupied laboratory space in several buildings located at One Kendall Square (OKS) Cambridge, Massachusetts since 1990. Genzyme is currently consolidating operations from the OKS to its other existing facilities elsewhere in Massachusetts. As part of this consolidation the laboratories in OKS Building 600 on the fourth and fifth floors, laboratories and manufacturing space in Building 700 fifth floor and the laboratories on the fifth floor of Building 1400 have been decommissioned and will be returned to the landlord on October I, 2007. Genzyme is planning to relocate its remaining operations from OKS in February 2008.

Genzyme Environmental requested EBI to conduct inspections and testing of the subject space to assure that chemical decontamination was completed to the landlord's specification. EBI conducted the requested assessment between September 18, 2007 and September 25, 2007. As of the start date of the assessment, all operations in fifth floor of building 1400 had ceased, ail laboratory equipment not permanently installed had been removed and the space cleaned by Genzyme's Environmental Services contractor. It was reported by Genzyme representative that the laboratories located on the fifth floor of building 1400 was vacated and cleaned in February 2007. Operations in the other laboratories subject to this assessment had ceased but equipment removal and cleaning was still in progress as of the start date of the assessment All biological and radiological decontamination and verification was completed by others working under contracted directly with Genzyme.

EBI Senior Program Director and Certified Industrial Hygienist, Mr. Richard Aichelmann visited the site on September 7, 2007. During that site visit Mr. Aichelmann toured the subject laboratory .space along with Mr. James Giordani, Genzyme Environmental Associate, for the purpose of developing strategy and plans for conducting the assessment and obtain preliminary copies of the landlord's specifications for the clean-out verification testing. Mr. Aichelmann returned, along with two Environmental Field Technicians from EBI. Mr. Stephan Schaub and Mr. Brian Gingras, on September 18 and 19 to initiate the assessment. On September 18 Mr. Schaub and Mr. Gingras collected surface wipe samples in the designated laboratories for the specified metals while Mr. Aichelmann collected wipe samples in the chemistry laboratory hoods (Building 1400 fifth floor) for perchlorates. Mr. Aichelmann initiated mercury air monitoring in the designated location on September 19 while Mr. Schaub and Mr. Gingras completed the required surface wipe sampling for metals and spot testing for corrosives and oxidizing agents. Mr. Aichelmann returned on September 20, 21 and 25 to complete the air monitoring for mercury.

Details of the sampling methodology, sample locations and a discussion of the results are provided in the following sections of this report.

3.0 METHODOLOGY

3.1 Sampling Strategy

The sampling strategy was essentially dictated by the landlord's specification for clean-up verification. According to information provided to EBI by Genzyme Environmental representatives, the landlord was concerned about and requested laboratory verification of the levels of the following metals on representative horizontal surfaces in all laboratories in buildings 600 and 1400: aluminum, antimony, barium, boron, chromium, lead, lithium, palladium, platinum, and silver; and for the laboratories in building 700 fifth floor, magnesium. Additionally, levels of surface contamination verified by laboratory analysis were specifically requested for perchlorates on surfaces inside the laboratory hoods in the chemistry laboratories on the fifth floor of building 1-400. The landlord also requested laboratory analysis for sodium azide in three locations in the laboratories on the fourth and fifth floors of building 600. Screening for airborne mercury in and

around sinks and other locations in all laboratory spaces using a direct-reading method (Jerome meter) and for corrosives using pH indicator strips on surfaces in all laboratories was also requested.

3.2 Sample Collection and Analysis

Surface contamination samples for metals were collected in accordance with NIOSH Method 9100 and ASTM El728. In all cases a surface area of one hundred (100) square centimeters (cm1) was sampled. Lead Wipe™ brand pre-moistened, lead dust sampling wipes, manufactured by Aramsco Incorporated, and which meet the specification of ASTM El792, were used to collect the surface samples. Disposable templates were used to assure the accuracy of the sample size.

Placing the template in the 'location to be sampled while wearing disposable nitrile gloves the wipe was folded in half and the area inside the template was rubbed, using moderate pressure, back and forth in one direction. After folding the wipe in half the area was rubbed again in a direction perpendicular to the first pass. The wipe was folded once again in half and the area was wiped a final time in the same direction as the first pass. The wipe was then folded two more times and placed in the sample container. The templates and gloves were changed between each sample to avoid cross-contamination.

All metals samples were collected by Mr. Schaub and Mr. Gingras, Bureau Veritas North America, Inc. of Novi, Michigan, an independent, American Industrial Hygiene Association accredited laboratory analyzed all samples for the specified metals in accordance with the appropriate NIOSH Methods.

Mr. Aichelmann collected the surface samples for perchlorates and sodium azide. The sampling procedure for these analytes was similar to that for the metals, except that Whatman brand ashless filter paper (catalog number 1442 I 10) moistened in the field with distilled water were used to collect the samples for perchlorates and a reusable lexan template was used to measure the sample area, where the geometry of the surface to be sampled allowed, otherwise the are was estimated using a measuring tape. The template was cleaned between samples with alcohol prep wipes. Perchlorate samples were analyzed by the Wisconsin Occupational Health Laboratory an independent, American Industrial Hygiene Association accredited laboratory located in Madison, Wisconsin. For sodium azide, a similar sampling method was followed except Zefron brand 0,8

micron mixed cellulose ester (MCE) fitters were used dry to wipe the surface to be sampled. Sodium azide samples were analyzed by Bureau Veritas.

An appropriate number of field blanks, prepared and submitted according professional standards of practice were analyzed with each batch of samples from each sampling round.

Spot testing for the presence of corrosives was accomplished using Whatman Type CF pH strips (Catalog Number 2613991) moistened with distilled water. Whatman potassium iodide starch paper, moistened with distilled water was used to test for the presence of organic peroxides, chlorine and other oxidizing agents on horizontal surfaces through out the lab.

Airborne mercury analysis was conducted using a Jerome J405-0DD5 Rev. B, Serial Number 40500121 direct-reading mercury vapor analyzer. The analyzer was factory calibrated on September 14, 2007. This meter has a range of 0.5 $\mu g/m^3$ to 999 $\mu g/m^3$ Hg with a sensitivity of.0.013 $\mu g/m^3$. The accuracy varies from ±5% at 25 $\mu g/m^3$ to ±10% at 1 $\mu g/m^3$, and the precision ranges from 3% at 25 $\mu g/m^3$ to 15% at 1 $\mu g/m^3$.

3.3 Sampling Locations

Metals samples were collected from up to three horizontal surfaces within each of the designated laboratories: floor, and on a bench top and inside a hood, if available, as well as from one office on each floor as a "reference sample". A larger number of similar locations were spot checked for corrosives and oxidizing agents.

Perchlorate samples were collected from inside laboratory hood ducts where accessible or from behind the baffles of the laboratory hoods as far up as was accessible.

Sodium azide samples were collected from the work surface inside of hoods or from the horizontal surface of chemical storage cabinets underneath laboratory hoods.

Mercury readings were taken below al! laboratory sinks, inside of limestone chip tanks where present and accessible, and in sinks above the drain. Some random samples for mercury were taken above floor drains and inside of permanently installed equipment in the laboratories.

4.0 RESULTS

The results of the metals analysis can be found on Table I below. The laboratory report of the metals samples analyses is attached in Appendix A.

The majority of the metals levels measured on the surfaces in the laboratories were all below the method detection limits, except as follows: aluminum was detected in 54 of the 56 samples collected and analyzed; chromium was detected in only one of the 56 samples collected; nine (9) of the eleven (II) samples collected for magnesium show detectable levels. Aluminum levels, where detected, ranged from exactly the detection limit (10 $\mu g/l00cm^2$) to a 140 $\mu g/100cm^1$ with a median of 19 $\mu g/100cm^2$. Magnesium levels, in those locations where it was

found above the detection limit, ranged from exactly the detection limit (100 µg/100cm^2) to a 150 µg/100cm^2 with a median of 110 µg/ 100cm^1, The chromium level in the single sample with detectable results was 26 µg/ 100cm^2.

No detectable levels of sodium azide were measure in any of the surface wipe samples collected for this analyte. The report of the laboratory analysis of die samples for sodium azide and the remaining magnesium samples is included as Appendix B.

Detectable levels of perchlorates were found in seven (7) of the twenty-two (22) samples collected and analyzed. Where detectable, the perchlorate levels ranged from 45 µg/ 100cm^2 to 150 µg/100cm^2, with a median of 51 µg/100cm^2. Due to complications inherent in the laboratory methodology for perchlorate wipe samples, the minimum detectable level varied considerably between samples. The laboratory experienced significant instability in the results of the calibration standards on the initial attempt to read the samples, and so the apparatus and standards were allowed to stabilize for two additional days before the samples were measured again. Because some of the sample volume was depleted for some of the samples during the initial measurement attempts, the detection limits were higher for these samples (100 µg/wipe compared to 40 µg/wipe those for which a large sample volume was available). The Wisconsin Occupational Health Laboratory analytical report for perch I orates is attached as Appendix C.

No detectable levels of any of the metals analyzed for, or for perchlorate were measured in any of the field blank. 1.5 µg of sodium azide was measured on the field blank submitted to the laboratory for that analyte.

The results of the air monitoring for mercury are report on the table in Appendix D. Detectable levels of mercury were measured for 98 of the 142 readings taken during the first two days of monitoring. The levels on these days ranged from below the detection limit for the instrument (reported as 0 on the table of results) to a high of 1.37 µ/m^3, with the lowest detectable reading being 0.50 µ/m^3. The average reading was 0.42 µ/m^3 and the median 0.55 µ/m^3. These results raised a concern that there may have been an interfering agent present in the environment that caused erroneously high reading and resulted in saturation of the analyzers sensor. In feet, at the end of each of these two days of sampling repeated measurements with the “zero air” filter in place failed to result readings of zero, or for that matter, reading that were decreasing. Some logical explanations for the interference include the possible presence of hydrogen sulfide or mercaptans in the air in the sink drains due to the lack of use in laboratories in Building 1400 and chlorine in the air in buildings 600 and 700 because cleaning was still in progress using sodium hypochlorite based bleach. Genzyme Facilities representatives flushed the laboratory sink drains and

wastewater plumbing in all of the laboratories on Friday September 21 and Monday September 24. Mercury measurements were repeated on Friday September 21 and Tuesday September 25 in all subject laboratories. Detectable levels of mercury were measured in only 6 of the 148 repeat measurements made on these two days. The detectable levels ranged from 0.51 µ/m^3 to 0.56 µ/m^3, just barely above the instrument’s detection limit. Considering how close these readings are to the minimum detectable level, the reduced accuracy and precision of the instrument at the low end of the scale, and the potential presence of interfering compounds, it is reasonable to assume that the levels of airborne mercury in the subject laboratories are essentially not detectable.

The pH readings taken on various horizontal surfaces (floors, bench tops, and work surfaces inside hoods) in over 100 locations through out the laboratories did not provide any indication for the presence of corrosive residues - pH readings were found to be within plus or minus one pH unit of neutrality. The spot testing with potassium iodide starch paper in the same locations as the pH testing were all negative for the presence of oxidizing agents.

Table 1 Metals Surface Wipe Results

Sample ID	Date	Location	Area	Al	Sb	Ba	B	Cr	Pb	Li	Pd	Pt	Ag	Mg
DA-01	18-Sep-07	Building 1400 Fifth Floor - Lab 576 - Hood	100 cm^2	11	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-01	18-Sep-07	Building 1400 Fifth Floor - Room 549 - Bench	100 cm^2	17	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-02	18-Sep-07	Building 1400 Fifth Floor - Room 549 - Floor Middle	100 cm^2	22	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-03	18-Sep-07	Building 1400 Fifth Floor - Room 565 - Bench	100 cm^2	15	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-04	18-Sep-07	Building 1400 Fifth Floor - Room 565 - Floor Middle	100 cm^2	16	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-05	18-Sep-07	Building 1400 Fifth Floor - Room 576 - Bench	100 cm^2	41	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-06	18-Sep-07	Building 1400 Fifth Floor - Room 576 - Floor Middle	100 cm^2	20	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-07	18-Sep-07	Field Blank	100 cm^2	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-08	18-Sep-07	Building 1400 Fifth Floor - Room 574 - Bench	100 cm^2	15	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-09	18-Sep-07	Building 600 Fifth Floor - Lab 1 Bench	100 cm^2	19	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-10	18-Sep-07	Building 600 Fifth Floor - Lab 1 Hood	100 cm^2	20	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-11	18-Sep-07	Building 600 Fifth Floor - Lab 1 Floor Middle	100 cm^2	17	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-12	18-Sep-07	Building 600 Fifth Floor - Lab 2 - Hood	100 cm^2	13	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-13	18-Sep-07	Building 600 Fifth Floor - Lab 2 - Bench	100 cm^2	16	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-14	18-Sep-07	Building 600 Fifth Floor - Lab 2 - Floor Middle	100 cm^2	22	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-15	18-Sep-07	Building 600 Fifth Floor - Lab 3 - Bench	100 cm^2	25	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-16	18-Sep-07	Building 600 Fifth Floor - Lab 3 - Hood	100 cm^2	50	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-17	18-Sep-07	Building 600 Fifth Floor - Lab Floor Middle	100 cm^2	31	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-18	18-Sep-07	Building 600 Fifth Floor - Lab 4 - Hood	100 cm^2	12	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-19	18-Sep-07	Building 600 Fifth Floor - Lab 4 - Bench	100 cm^2	19	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-20	18-Sep-07	Building 600 Fifth Floor - Lab 4 - Floor Middle	100 cm^2	27	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-21	18-Sep-07	Building 600 Fourth Floor - Biomaterials 2 - Bench	100 cm^2	21	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-22	18-Sep-07	Building 600 Fourth Floor - Biomaterials 2 - Floor	100 cm^2	31	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-23	18-Sep-07	Building 600 Fourth Floor - Biomaterials 3 - Hood	100 cm^2	120	BRL	BRL	BRL	26	BRL	BRL	BRL	BRL	BRL	NA
BG-24	18-Sep-07	Building 600 Fourth Floor - Biomaterials 3 - Bench	100 cm^2	17	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-25	18-Sep-07	Building 600 Fourth Floor - Biomaterials 3 - Floor	100 cm^2	18	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-26	18-Sep-07	Building 600 Fourth Floor - Office 435 - Floor	100 cm^2	14	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-27	18-Sep-07	Building 600 Fourth Floor - Office 435 - Bench	100 cm^2	34	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-28	18-Sep-07	Building 700 Fifth Floor - Office 7580 - Bench	100 cm^2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	BRL
BG-29	18-Sep-07	Building 700 Fifth Floor - Lab 7026 - Hood	100 cm^2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100
BG-30	18-Sep-07	Building 700 Fifth Floor - Lab 7026 - Bench	100 cm^2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	110
BG-31	18-Sep-07	Building 700 Fifth Floor - Lab 7026 - Floor	100 cm^2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	110
SS-01	18-Sep-07	Building 1400 Fifth Floor - Lab 589 - Bench	100 cm^2	16	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA

Table 1 Metals Surface Wipe Results

SS-02	18-Sep-07	Building 1400 Fifth Floor - Lab 589 - Hood	100 cm^2	140	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-03	18-Sep-07	Building 1400 Fifth Floor - Lab 589 - Floor	100 cm^2	20	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-04	18-Sep-07	Building 1400 Fifth Floor - Lab 586 - Floor	100 cm^2	20	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-05	18-Sep-07	Building 1400 Fifth Floor - Lab 586 - Bench	100 cm^2	16	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-06	18-Sep-07	Building 1400 Fifth Floor - Lab 586 - Hood	100 cm^2	28	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-07	18-Sep-07	Building 1400 Fifth Floor - Lab 590 - Hood	100 cm^2	27	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-08	18-Sep-07	Building 1400 Fifth Floor - Lab 590 - Bench	100 cm^2	10	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-09	18-Sep-07	Building 1400 Fifth Floor - Lab 590 - Floor	100 cm^2	18	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-10	18-Sep-07	Field Blank	100 cm^2	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-11	18-Sep-07	Building 600 Fifth Floor - Lab 8 Bench 1	100 cm^2	21	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-12	18-Sep-07	Building 600 Fifth Floor - Lab 8 Floor	100 cm^2	19	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-13	18-Sep-07	Building 600 Fifth Floor - Lab 1 Bench 2	100 cm^2	12	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-14	18-Sep-07	Building 600 Fifth Floor - Lab 7 - Floor	100 cm^2	42	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-15	18-Sep-07	Building 600 Fifth Floor - Lab 6 - Bench	100 cm^2	52	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-16	18-Sep-07	Building 600 Fifth Floor - Lab 6 - Floor	100 cm^2	16	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-17	18-Sep-07	Building 600 Fifth Floor - Lab 6 - Hood	100 cm^2	21	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-18	18-Sep-07	Building 600 Fifth Floor - Lab 5 - Bench	100 cm^2	12	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-19	18-Sep-07	Building 600 Fifth Floor - Lab 5 - Floor	100 cm^2	13	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-20	18-Sep-07	Building 600 Fifth Floor - Lab 5 - Hood	100 cm^2	11	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-21	18-Sep-07	Building 600 Fifth Floor - Conference Room 5041	100 cm^2	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-22	18-Sep-07	Building 600 Fourth Floor - Biomaterials 1 - Bench	100 cm^2	11	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-23	18-Sep-07	Building 600 Fourth Floor - Biomaterials 1 - Hood	100 cm^2	15	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-24	18-Sep-07	Building 600 Fourth Floor - Biomaterials 1 - Floor	100 cm^2	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-25	18-Sep-07	Building 600 Fourth Floor - Phospholipids Lab - Bench	100 cm^2	26	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-26	18-Sep-07	Building 600 Fourth Floor - Phospholipids Lab - Hood	100 cm^2	18	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-27	18-Sep-07	Building 600 Fourth Floor - Phospholipids Lab - Floor	100 cm^2	24	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-28	18-Sep-07	Building 600 Fourth Floor - Biomaterials 3 - Bench	100 cm^2	10	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-29	18-Sep-07	Building 600 Fourth Floor - Biomaterials 3 - Floor	100 cm^2	25	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
SS-30	18-Sep-07	Building 600 Fourth Floor - Biomaterials 3 - Hood	100 cm^2	26	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	NA
BG-01	19-Sep-07	Building 700 Fifth Floor - Lab 7025 - Bench	100 cm^2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100
BG-02	19-Sep-07	Building 700 Fifth Floor - Lab 7025 - Floor	100 cm^2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	110
BG-03	19-Sep-07	Building 700 Fifth Floor - Lab 7015 - Floor	100 cm^2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	150
BG-04	19-Sep-07	Building 700 Fifth Floor - Lab 6510 - Bench	100 cm^2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	BRL
BG-05	19-Sep-07	Building 700 Fifth Floor - Lab 6510 - Floor	100 cm^2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100
BG-06	19-Sep-07	Building 700 Fifth Floor - Lab 7013 - Hood	100 cm^2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	110
BG-07	19-Sep-07	Building 700 Fifth Floor - Lab Lab 7013 - Floor	100 cm^2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	140

Table 1 Metals S[illegible]ace Wipe Results

All values =	micrograms per wipe
NA =	Not Analyzed
BRL =	Below Reporting Limits

Symbol	Analyte	Reporting Limits µ/wipe
Al	Aluminum	10
Sb	Antimony	10
Ba	Barium	10
B	Boron	10
Cr	Chromium	10
Pb	Lead	10
Li	Lithium	10
Pd	Palladium	5
Pt	Platinum	5
Ag	Silver	2
Mg	Magnesium	100

Table 2 - Perchlorate and Sodium Azide Results

Sample ID	Date	Location	Area	Perchlorate	Sodium Azide
DA-02	18-Sep-07	Building 1400 Fifth Floor - Lab 576 - Hood 1	100 cm^2	BRL	NA
DA-03	18-Sep-07	Field Blank	100 cm^2	BRL	NA
DA-04	18-Sep-07	Building 1400 Fifth Floor - Lab 576 - Hood 15 -Behind Baffle	100 cm^2	BRL	NA
DA-05	18-Sep-07	Building 1400 Fifth Floor - Lab 576 - Hood 16 - Behind Baffle	100 cm^2	BRL	NA
DA-06	18-Sep-07	Building 1400 Fifth Floor - Lab 576 - Hood 17 - Behind Baffle	100 cm^2	BRL	NA
DA-07	18-Sep-07	Building 1400 Fifth Floor - Lab 576 - Hood 29 - Behind Baffle	100 cm^2	BRL*	NA
DA-08	18-Sep-07	Building 1400 Fifth Floor - Lab 576 - Hood 26 - Behind Baffle	100 cm^2	51	NA
DA-09	18-Sep-07	Building 1400 Fifth Floor - Lab 576 - Hood 27 - Behind Baffle	100 cm^2	BRL	NA
DA-10	18-Sep-07	Building 1400 Fifth Floor - Lab 576 - Hood 28 - Behind Baffle	100 cm^2	BRL*	NA
DA-11	18-Sep-07	Building 1400 Fifth Floor - Lab 576 - Hood 14 - Inside Duct	100 cm^2	48	NA
DA-12	18-Sep-07	Building 1400 Fifth Floor - Lab 576 - Hood 13 - Inside Duct	100 cm^2	BRL	NA
DA-13	18-Sep-07	Building 1400 Fifth Floor - Lab 576 - Hood 12 - Inside Duct	100 cm^2	45	NA
DA-14	18-Sep-07	Building 1400 Fifth Floor - Lab 576 - Hood 11- Inside Duct	100 cm^2	47	NA
DA-15	18-Sep-07	Building 1400 Fifth Floor - Lab 576 - Hood 10 - Inside Duct	100 cm^2	BRL*	NA
DA-16	18-Sep-07	Building 1400 Fifth Floor - Lab 576 - Hood 9 - Inside Duct	100 cm^2	73	NA
DA-17	18-Sep-07	Building 1400 Fifth Floor - Lab 576 - Hood 8 - Inside Duct	100 cm^2	53	NA
DA-18	18-Sep-07	Building 1400 Fifth Floor - Lab 576 - Hood 6 - Behind Baffle	100 cm^2	BRL	NA
DA-19	18-Sep-07	Building 1400 Fifth Floor - Lab 576 - Hood 7 - Behind Baffle	100 cm^2	BRL	NA
DA-20	18-Sep-07	Building 1400 Fifth Floor - Lab 576 - Hood 3 - Behind Baffle	100 cm^2	BRL	NA
DA-21	18-Sep-07	Building 1400 Fifth Floor - Lab 576 - Hood 4 - Behind Baffle	100 cm^2	BRL	NA
DA-22	18-Sep-07	Building 1400 Fifth Floor - Lab 576 - Hood 5 - Behind Baffle	100 cm^2	BRL	NA
DA-23	18-Sep-07	Building 1400 Fifth Floor - Lab 576 - Hood HEF 2 - Behind Baffle	100 cm^2	150	NA
DA-24	18-Sep-07	Field Blank	100 cm^2	BRL	NA
DA-25	18-Sep-07	Field Blank	100 cm^2	BRL	NA
DA-26	19-Sep-07	Building 600 Fourth Floor - Lab 3 Chemical Storage Cabinet	100 cm^2	NA	BRL
DA-27	19-Sep-07	Building 600 Fourth Floor - Lab 3 Hood 2	100 cm^2	NA	BRL
DA-28	19-Sep-07	Building 600 Fifth Floor - Lab 5 Hood 1	100 cm^2	NA	BRL
DA-29	19-Sep-07	Field Blank	100 cm^2	NA	1.5

All values = micrograms per wipe
NA = Not Analyzed
BRL = Below Reporting Limits

Analyte	Reporting Limits µ/wipe
Perchlorate	40
Perchlorate (BRL*)	100
Sodium Azide	0.86

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

There are currently no regulatory standards for surface contamination for any of the compounds analyzed for in this assessment that are directly applicable to industrial facilities such as this.

The US Department of Labor Occupational Safety and Health Administration (OSHA) has established a workplace Permissible Exposure Limit (PEL) for mercury of one hundred micrograms per cubic meter of air (100 µg/m^3), as a ceiling. The level of mercury for all but one of the measurements taken was well below this limit during the entire monitoring event, and all reading were below the PEL for the repeat monitoring conducted on the second two days of sampling.

Based on the low levels of contaminants found and the lack of any regulatory limits associated with the compounds of concern, it is the professional opinion of this Certified industrial Hygienist that the subject property can be occupied and used for its expected industrial use without restriction, and that such use is not anticipated to present a health hazard to the occupants due to the lead levels found in the dust inside the building during this assessment No significant safety or health risk for workers involved in demolition and renovation activities is expected if typical and reasonable precautions are employed.

5.2 Recommendations

No further cleaning or remediation is required or recommended.

6.0 LIMITATIONS AND DISCLAIMER

The information presented in this report relates to conditions present in the ·facilities at the times of the surveys and also relies on information provided by site personnel at the times of the surveys, and may not necessarily reflect conditions present at other times or locations.

The use of trade names in this report is for the purpose of identification or as an example and should not be construed as an endorsement of the products or services or a recommendation for their use.

Appendix A - Bureau Veritas Laboratory Results - Various Metals

September 24, 2007

Richard Aichelmann
ENVIRO BUSINESS INC
21 B Street
Burlington, MA 01803-

Bureau Veritas Work Order No. 07090854

Reference:

Dear Richard Aichelmann:

Bureau Veritas North America, Inc. received 62 samples on 9/20/2007 for the analyses presented in the following report.

Enclosed is a copy of the Chain-of-Custody record, acknowledging receipt of these samples. Please note that any unused portion of the samples will be discarded 30 days after the date of this report, unless you have requested otherwise.

This material is confidential and is intended solely for the person to whom it is addressed. If this is received in error, please contact the number provided below.

We appreciate the opportunity to assist you. If you have any questions concerning this report, please contact a Client Services Representative at (800) 806-5887.

Sincerely,

Sharon M Johnson
Client Services

cc:

Bureau Veritas North America, Inc.
22345 Roethel Drive
Novi, MI 48375

Main: (248) 344.1770
Fax: (248) 344.2655
www.us.bureauveritas.com

FIFTH AMENDMENT OF LEASE

THIS FIFTH AMENDMENT OF LEASE (the "Fifth Amendment") is made this 6th day of July, 2009 (the "Effective Date") by and between **RB KENDALL FEE, LLC** ("Landlord"') and **MERRTMACK PHARMACEUTICALS, INC.**, having a mailing address at One Kendall Square, Building 600/700, Cambridge, Massachusetts 02139 ("Tenant").

BACKGROUND:

A. Reference is made to a certain Lease dated May 12, 2006 by and between Landlord and Tenant as amended by (i) First Amendment of Lease dated March 23, 2007, (ii) Second Amendment of Lease dated as of July 1, 2007, (iii) Third Amendment of Lease dated as of April 1, 2008, and (iv) Fourth Amendment of Lease dated November 17, 2008 (collectively, the "Lease"), demising approximately 31,747 rentable square feet of space on a portion of the second floor and approximately 132 rentable square feet of space in the basement of Building 600/650/700 (the "Existing Premises"), approximately 2,262 s.f. of rentable space in the basement of Building 600/650/700 (the "Storage Space") and approximately 18,748 rentable square feet of space on the fourth (4th) floor of Building 600 (the "Expansion Space") in One Kendall Square, Cambridge, Massachusetts (the "Complex"). Capitalized terms used but not defined herein shall have the same meaning as in the Lease.

B. Landlord and Tenant are the current holders, respectively, of the lessor's and lessee's interests in the Lease.

C. Landlord and Tenant want to amend the Lease as set forth herein.

AGREEMENTS:

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Landlord and Tenant hereby agree to amend the Lease as follows:

1. Additional 700 Storage Space. Notwithstanding anything in the Lease to the contrary, and in addition to the Storage Space, Tenant shall, commencing on July 1, 2009 (the "Effective Date") and for the Term of the Lease only, as same may be extended pursuant to Section 29.14 of the Lease, have the exclusive license to use as storage space approximately 660 r.s.f. in the basement of Building 700 at the Complex as shown cross-hatched on the plan attached hereto as Exhibit A-1 (the "Additional 700 Storage Space Plan"), for the storage of Tenant's personal property and effects relating to its permitted use of the premises under the Lease and for no other purpose(s). Except as otherwise provided herein, Tenant's use of the Additional 700 Storage Space shall be subject to all of the terms and conditions of the Lease. As of the Effective Date, Tenant agrees to pay to Landlord, in advance and as additional rent under the Lease without demand, offset or deduction, at the same time as monthly installments of Yearly Rent are due under the Lease, a license fee equal to $660.00 per month during each month of the Term. In the event of the termination or expiration of the Lease, Tenant's license to use the Additional 700 Storage Space, if not already terminated or expired, shall immediately terminate without any further notice or demand.

2. "As-Is". Tenant agrees that it is taking the Additional 700 Storage Space "as-is", in the condition in which the Additional 700 Storage Space is in as of the date hereof, without any obligation on

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the part of Landlord to prepare or construct the Additional 700 Storage Space for Tenant's occupancy and without any warranty or representation by Landlord as to the condition of the Additional 700 Storage Space or its fitness for any use or purpose. Tenant shall keep neat and clean and maintain in good order, condition and repair, the Additional 700 Storage Space excepting only damage by fire or other casualty or as a consequence of the exercise of the power of eminent domain and reasonable wear and tear and Tenant shall surrender the Additional 700 Storage Space at the expiration of the Lease, unless sooner terminated, in such condition, free of all personal property and effects. Tenant shall maintain and use the Additional 700 Storage Space in accordance with all Federal, State, County and Municipal laws, rules, orders and regulations. Tenant acknowledges and agrees that Landlord shall have no obligation to provide cleaning or other services to the Additional 700 Storage Space. In addition to the other termination rights set forth in the Lease, either party shall have the right to terminate this license to use the Additional 700 Storage Space upon not less than thirty (30) days written notice to the other party, and upon such termination Tenant shall surrender the Additional 700 Storage Space as set forth above.

3. Brokers. Landlord and Tenant each warrant and represent to the other that they have dealt with no brokers in connection with the negotiation or consummation of this Fifth Amendment other than Beal and Company, Inc., and in the event of any brokerage claim against either party by any person claiming to have dealt with either Landlord or Tenant in connection with this Fifth Amendment, the party with whom such person claims to have dealt shall defend and indemnify the other party against such claim.

4. Ratification. In all other respects the Lease shall remain unmodified and shall continue in full force and effect, as amended hereby. The parties hereby ratify, confirm, and reaffirm all of the terms and conditions of the Lease, as amended hereby.

[Signatures on Following Page]

IN WITNESS WHEREOF the parties hereto have executed this Fifth Amendment of Lease on the date first written above in multiple copies, each to be considered an original hereof, as a sealed instrument.

LANDLORD:

RB KENDALL FEE, LLC,
a Delaware limited liability company

By: /s/ Robert L. Beal
Robert L. Beal, its authorized signatory

TENANT:

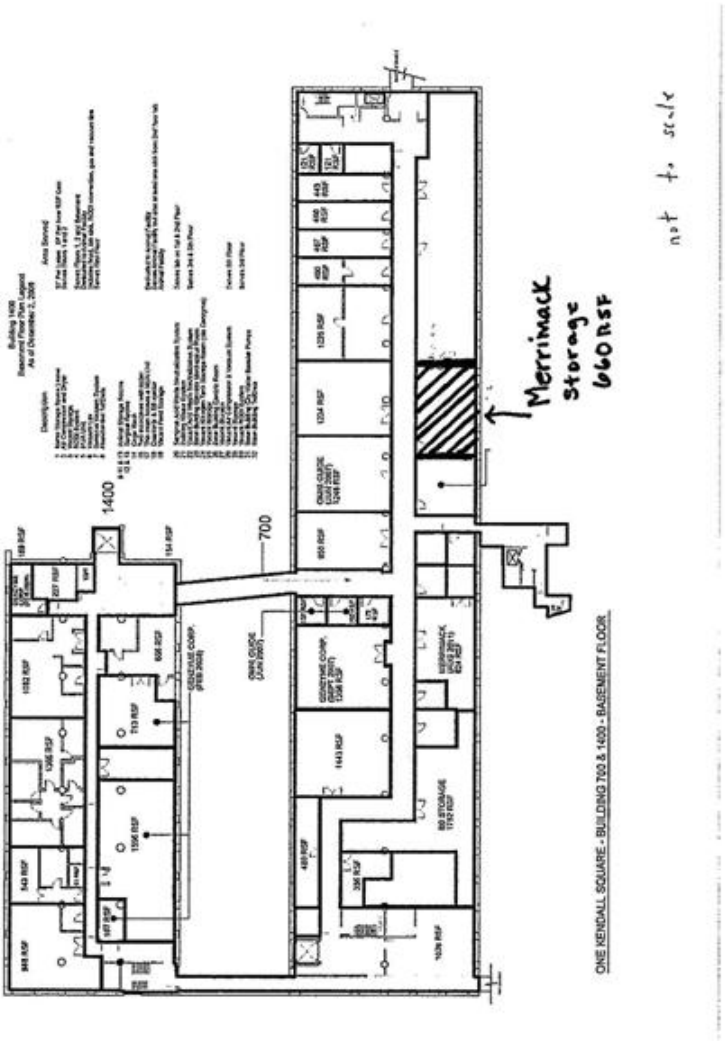
MERRIMACK PHARMACEUTICALS,
INC., a Massachusetts corporation

By: /s/ Lisa. A. Evren
Name: Lisa A. Evren
Title: EVP & CFO

EXHIBIT A-1

ADDITIONAL 700 STORAGE SPACE PLAN

See attached.



SIXTH AMENDMENT OF LEASE

THIS SIXTH AMENDMENT OF LEASE (the "Sixth Amendment") is made as of the 27 day of January 2010 (the "Effective Date") by and between **RB KENDALL FEE, LLC** ("Landlord") and **MERRIMACK PHARMACEUTICALS, INC.**, having a mailing address at One Kendall Square, Building 600/700, Cambridge, Massachusetts 02139 ("Tenant"),

BACKGROUND:

A. Reference is made to a certain Lease dated May 12, 2006 by and between Landlord and Tenant as amended by (i) First Amendment of Lease dated March 23, 2007, (ii) Second Amendment of Lease dated as of July 1, 2007, (iii) Third Amendment of Lease dated as of April 1, 2008; (iv) Fourth Amendment of Lease dated November 17, 2008 and (v) Fifth Amendment of Lease dated July 6, 2009 (collectively, the "Lease"), demising approximately 31,747 rentable square feet of space on a portion of the second floor, approximately 18,748 rentable square feet of space on a portion of the fourth floor and approximately 132 rentable square feet of space in the basement of Building 600/650/700 (the "Existing Premises") and approximately 2,922 rentable square feet of space in the basement of Building 600/650/700 and 660 rentable square feet of space in the basement of Building 700 (the "Storage Space") in One Kendall Square, Cambridge, Massachusetts (the "Complex"). Capitalized terms used but not defined herein shall have the same meaning as in the Lease.

B. Landlord and Tenant are the current holders, respectively, of the lessor's and lessee's interests in the Lease.

C. Landlord and Tenant want to expand the premises demised under the Lease to include additional space within Building 700 in the Complex and to further to amend the Lease as set forth herein.

AGREEMENTS:

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Landlord and Tenant hereby agree and amend the Lease as follows:

1. 700 Expansion Space. Effective upon the date that is the earlier of (i) March 1, 2010 or (it) the date Tenant commences business operations in the 700 Expansion Space (the "700 Expansion Space Effective Date"), the approximately 11,878 rentable square feet of space located on the fourth (4th) floor in Building 700 within the Complex, as shown on the plan attached hereto as Exhibit A-1 ("700 Expansion Space") shall be deemed added to and incorporated into the premises demised under the Lease. Upon the 700 Expansion Space Effective Date all references to the premises in the Lease shall include the 700 Expansion Space and all references to Exhibit A in the Lease shall be deemed to include and refer to Exhibit A-1 as well, as applicable. The 700 Expansion Space shall be delivered free of all occupants, personal property, trade fixtures and equipment, with all base Building systems serving the 700 Expansion Space in good working order and shall be delivered to Tenant, subject to completion of Landlord's Work (as hereinafter defined), in "as-is", "where-is" condition without any warranty of fitness for use or occupancy, expressed or implied. Except for Landlord's Work, Tenant agrees that Landlord has no work to perform in or on the 700 Expansion Space to prepare same for Tenant's use and occupancy. From and after the 700 Expansion Space Effective Date, all references in the Lease to the "Premises" shall mean, as the context shall require, the Existing Premises, Storage Space and 700 Expansion Space, collectively. Prior to entering the 700 Expansion Space, Tenant shall obtain all

insurance Tenant is required to obtain by the Lease as to the 700 Expansion Space and shall provide certificates of said insurance to Landlord.

2. Use. The 700 Expansion Space may be used solely for laboratory and general office use and for no other purpose, subject to the terms and conditions of the Lease.

3. Term. The term of the Lease with respect to the 700 Expansion Space shall commence on the 700 Expansion Space Effective Date and shall be otherwise coterminous with the term of the Existing Premises under the Lease expiring on April 14, 2012 (the "700 Expansion Space Termination Date"), unless otherwise terminated pursuant to the terms and conditions of the Lease.

4. Yearly Rent. Commencing on the 700 Expansion Space Effective Date and continuing through and including the 700 Expansion Space Termination Date, the Yearly Rent for the 700 Expansion Space shall be as set forth in the table below.

Period	Yearly Rent	Monthly Rent	Rent Per Rentable Square Foot
700 Expansion Space Effective Date through April 14, 2011-	$ 475,120.00	$ 39,593.33	$ 40.00
April 15, 2011 through April 14, 2012	$ 486,998.00	$ 40,583.17	$ 41.00

The Yearly Rent for the 700 Expansion Space shall be payable in accordance with the terms of the Lease and shall be in addition to the Yearly Rent and all other amounts due and payable by Tenant pursuant to the Lease. Tenant's obligation to pay Taxes. Operating Costs and parking expenses for the 700 Expansion Space shall commence on the 700 Expansion Space Effective Date.

5. Tenant's Proportionate Shares. Commencing on the 700 Expansion Space Effective Date, Tenant's Proportionate Common Area Share shall be 9.59 % and Tenant's Proportionate Building Share shall be 27.67% payable in accordance with the terms of the Lease. Landlord reserves the right, throughout the term of the Lease, to recalculate the Total Rentable Area of the Building and/or the Complex and Tenant's Proportionate Common Area and Building Shares shall be adjusted accordingly.

6. Bathroom Renovations. Landlord agrees, at Landlord's sole cost and expense, to refurbish in a good and workmanlike manner the two (2) bathrooms on the fourth (4^{th}) floor of Building 700 that are adjacent to the 700 Expansion Space using building standard design and construction materials and finishes. Subject to delays caused by factors beyond the control of Landlord, Landlord shall complete the bathroom refurbishment no later than March 1, 2010. The refurbishment shall include new ceilings, new paint, new lighting, new countertops and new sinks, electrostatic painting and repair of existing stalls, re-grouting of existing title floors and walls and painting of all non-tile horizontal surfaces.

7. Utilities. Commencing on the 700 Expansion Space Effective Date, Tenant shall pay the cost for its use of utilities in the 700 Expansion Space including the consumption of electricity for plugs, lights and heat pumps which consumption is separately metered.

8. Landlord's Work. Landlord shall complete, at Landlord's sole cost and expense, the following work in a good and workmanlike manner using, where applicable, Landlord's building standard design and construction materials and finishes ("Landlord's Work"): (i) demise the 700 Expansion Space as shown on the plan attached hereto as Exhibit A-1 and provide a building standard entry door; (ii) deliver the mechanical, electrical and plumbing (MEP) systems serving the 700 Expansion Space in good operating condition and repair and replace any and all obsolete components of the HVAC system, including, but not limited to, the heat pumps and the central base building equipment that serves the 700 Expansion Space (this work shall include, but not be limited to (a) replacing 7 of the existing heat pumps, with the remaining 10 heat pumps put in good operating condition and repair; (b) replacing 2 of the make-up air fans (exhaust systems); (c) replace the existing rooftop 45 ton chiller (and remove from the 700 Expansion Space any piping associated with the existing chiller) with four (4) 5-ton heat pumps with supplemental heat that supports the make-up air handler units that are located in the labs serving the 700 Expansion Space); (iii) deliver the lab areas decontaminated and decommissioned as approved by the appropriate governmental authorities (Landlord has provided reports to Tenant showing such decommissioning of the lab areas (except for the approximately 923 square feet as shown on Exhibit B-1 attached hereto, the "Carve Out Space") which constitutes a portion of the 700 Expansion Space; Landlord shall provide a report showing the decommissioning of said Carve Out Space no later than twenty (20) days after the Effective Date; (iv) separate the MEP systems that serve the 700 Expansion Space for Tenant's exclusive use, including separate metering of the electricity; (v) deliver the emergency generator that serves the 700 Expansion Space in good working condition with Tenant having the non-exclusive use of the generator and sharing the maintenance and operating costs of the generator proportionately with the tenants that utilize it; and (vi) complete all perimeter caulking and sealing of the interior and exterior windows in the 700 Expansion Space. Subject to delays caused by factors beyond the control of Landlord, Landlord shall complete Landlord's Work no later than six (6) weeks after the Effective Date. Landlord

agrees that if Landlord does not deliver the decommissioning reports for the Carve Out Space within the twenty (20) day period set forth in (iii) above, then the commencement of Tenant's rent obligation on the 700 Expansion Space shall be delayed one (1) day for each day beyond the twenty (20) day period that Landlord fails to deliver said reports.

9. Tenant's Improvements; Landlord's Contribution. (a) Tenant plans to complete certain Tenant's leasehold improvements to the 700 Expansion Space ("Tenant's Improvements") in accordance with the terms and conditions of the Lease (as amended hereby). In connection with Tenant's Improvements, Landlord shall contribute up to $118,780.00 ("Landlord's Contribution") in the aggregate toward the cost of the design and construction of Tenant's Improvements. Landlord's Contribution shall be paid, and requests therefor shall be made, in the manner provided in Section 4.2 of the Lease, except that Sections 4.2.C(iii) and (iv) are inapplicable.

(b) Tenant's Improvements shall be effected in accordance with the terms and conditions of the Lease, including but not limited to Articles 11, 12 and 13 thereof. Without limiting the foregoing, Tenant shall obtain Landlord's prior written consent for all of Tenant's Improvements (and Plans and Specifications therefor [as defined below]), and the contractors, engineers, architects, technicians and mechanics effecting same, which consent shall not be unreasonably withheld, conditioned or delayed. Landlord hereby consents to Tenant's employment of Jones, Lang, LaSalle Boston Construction, LP as its prime contractor, Winter Street Architects, Inc. as its architect and RDK Engineers as its mechanical, electrical and plumbing engineer. Tenant shall be responsible for the preparation of construction plans and specifications, including but not limited to architectural, mechanical, electrical, plumbing, life-safety and other Building systems and interfaces therewith (collectively, the "Plans and Specifications"), and any specialty engineering necessary for the completion of Tenant's Improvements, all of which shall be subject to Landlord's prior written consent, which consent shall not be unreasonably withheld,

conditioned or delayed. Landlord shall be entitled to deduct from Landlord's Contribution all direct, reasonable third party out-of-pocket expenses incurred by Landlord in reviewing and approving the Plans and Specifications following delivery of detailed invoices for same to Tenant as well as a Construction Management Fee as set forth in Section 4.2E of the Lease.

(c) Tenant shall have the right to enter the 700 Expansion Space (with the exception of the Carve Out Space) after the Effective Date but prior to the 700 Expansion Space Effective Date, during normal business hours and without payment of rent but with prior notice to the Building 700 property manager, to perform Tenant's Improvements provided such entry does not interfere with the performance and completion of Landlord's Work (including, without limitation, the completion of the decommissioning of the Carve Out Space). Tenant shall have a similar right to enter the Carve Out Space after Landlord completes the decommissioning of such space. Any such right of entry shall be subject to all provisions of this Lease (except for payment of rent), and any entry thereunder shall be at the risk of Tenant. Landlord and Tenant agree to work cooperatively to coordinate the completion of Tenant's Improvements and Landlord's Work in a timely manner.

10. Parking. As of the 700 Expansion Space Effective Date, Tenant shall be entitled to an additional twelve (12) monthly parking passes available to Tenant for use in the OKS Garage pursuant to, and in accordance with, Section 29.19 of the Lease, except that the parties acknowledge and agree that the monthly charge for such passes shall be based upon market rates then charged in the OKS Garage and in similar garages located in the East Cambridge/Kendall Square market, as such rates may vary from time to time (as of the date of this Sixth Amendment the market rate is $220.00 per month).

11. Brokers. Landlord and Tenant each warrant and represent to the other that they have dealt with no brokers in connection with the negotiation or consummation of this Sixth Amendment other than Colliers Meredith & Grew, FHO Partners and Beal and Company, Inc. (collectively, the "Broker") and in the event of any brokerage claim against either party by any person claiming to have dealt with either Landlord or Tenant in connection with this Sixth Amendment, other than the Broker, the party with whom such person claims to have dealt shall defend and indemnify the other party against such claim.

12. Reaffirmation. In all other respects the Lease shall remain unmodified and shall continue in full force and effect, as amended hereby. The parties hereby ratify, confirm, and reaffirm all of the terms and conditions of the Lease, as amended hereby.

[**Signatures Appear on Following Page**]

IN WITNESS WHEREOF the parties hereto have executed this Sixth Amendment to Lease on the date first written above in multiple copies, each to be considered an original hereof, as a sealed instrument.

LANDLORD:	TENANT:
RB KENDALL FEE, LLC	MERRIMACK PHARMACEUTICALS, INC.
By: /s/ Robert L. Beal Robert L. Beal. its authorized signatory	By: /s/ Robert J. Mulroy Name: Robert J. Mulroy Title: President & CEO

EXHIBIT A-1, SIXTH AMENDMENT
LEASE PLAN FOR 700 EXPANSION SPACE

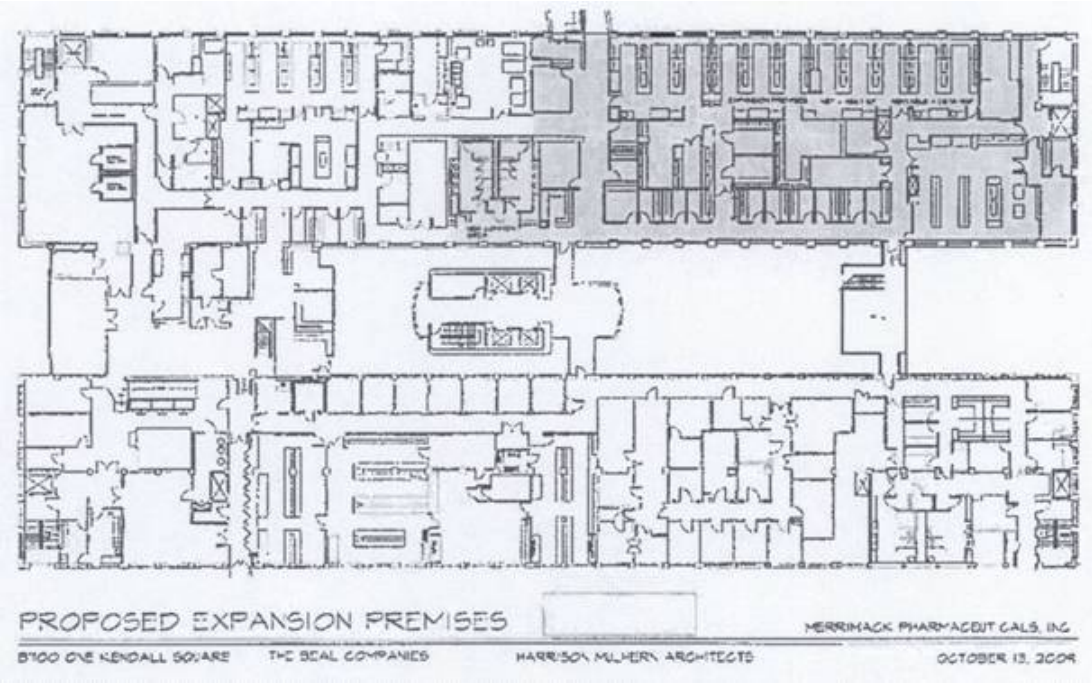
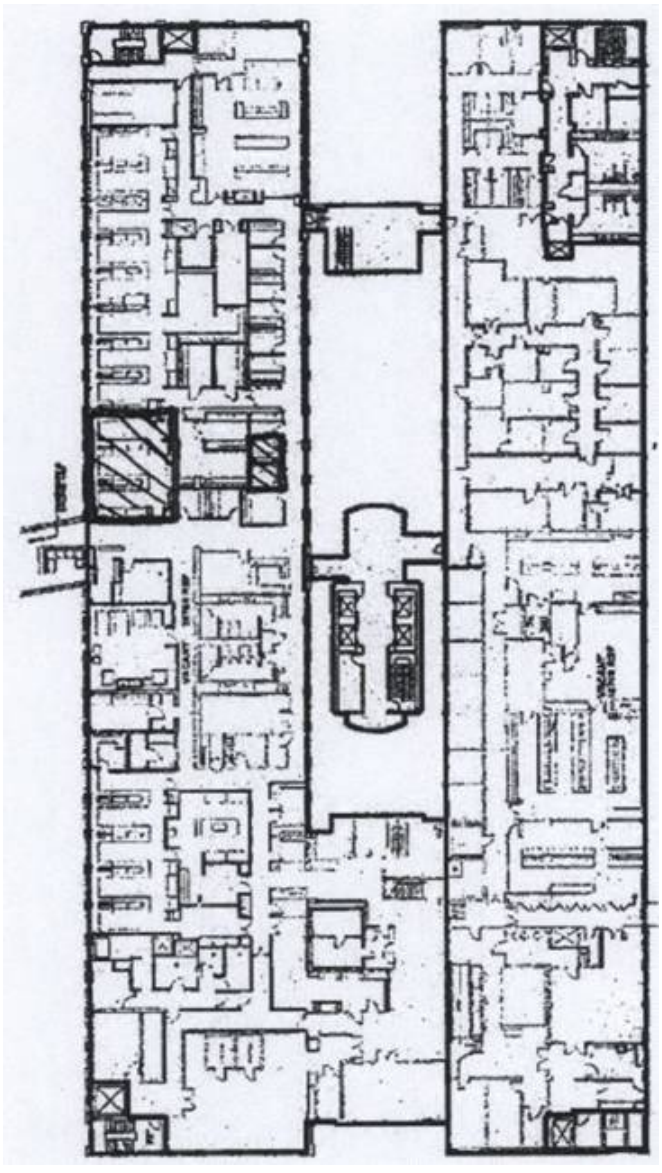


EXHIBIT B-1, SIXTH AMENDMENT
PLAN OF CARVE-OUT SPACE

One Kendall Square, Building 600/650/700
Fourth Floor



SEVENTH AMENDMENT OF LEASE

THIS SEVENTH AMENDMENT OF LEASE (the "Seventh Amendment"') is made as of the 29th day of June, 2010 (the "Effective Date") by and between **RB KENDALL FEE, LLC** ("Landlord"') and **MERRIMACK PHARMACEUTICALS, INC.**, having a mailing address at One Kendall Square, Building 600/700, Cambridge, Massachusetts 02139 ("Tenant").

BACKGROUND:

A. Reference is made to a certain Lease dated May 12,2006 by and between Landlord and Tenant as amended by (i) First Amendment of Lease dated March 23, 2007, (ii) Second Amendment of Lease dated as of July 1,2007, (iii) Third Amendment of Lease dated as of April 1,2008; (iv) Fourth Amendment of Lease dated November 17,2008; (v) Fifth Amendment of Lease dated July 6, 2009; and (vi) Sixth Amendment of Lease dated January 27,2010 (collectively, the "Lease"), demising approximately 31,747 rentable square feet of space on a portion of the second floor, approximately 30,626 rentable square feet of space on a portion of the fourth floor and approximately 132 rentable square feet of space in the basement of Building 600/650/700 (the "Existing Premises") and approximately 2,922 rentable square feet of space in the basement of Building 600/650/700 and 660 rentable square feet of space in the basement of Building 700 (the "Storage Space") in One Kendall Square, Cambridge, Massachusetts (the "Complex"). Capitalized terms used but not defined herein shall have the same meaning as in the Lease.

B. Landlord and Tenant are the current holders, respectively, of the lessor's and lessee's interests in the Lease.

C. Landlord and Tenant want to expand the premises demised under the Lease to include additional space within Building 600/650/700 in the Complex and to further to amend the Lease as set forth herein.

AGREEMENTS:

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Landlord and Tenant hereby agree and amend the Lease as follows:

1. Additional Space. Effective upon the later of (i) the date hereof and (ii) the date that Landlord has demised the Additional Space as shown on Exhibit A-1 attached hereto (the "Additional Space Effective Date"), the approximately 4,773 rentable square feet of space located on the fourth (4th) floor in Building 600/650/700 within the Complex, as shown on the plan attached hereto as Exhibit A-1 ("Additional Space") shall be deemed added to and incorporated into the Premises demised under the Lease. Upon the Additional Space Effective Date all references to the Premises in the Lease shall include the Additional Space and all references to Exhibit A in the Lease shall be deemed to include and refer to Exhibit A-l as well, as applicable. The Additional Space shall be delivered free of all occupants, personal property, trade fixtures and equipment, with all base Building systems serving the Additional Space in good working order and shall be delivered to Tenant in "as-is", "where-is" condition without any warranty of fitness for use or occupancy, expressed or implied. Tenant agrees that Landlord has no work to perform in or on the Additional Space to prepare same for Tenant's use and occupancy except to demise the Additional Space as shown on Exhibit A-l attached hereto. Any work to be completed by Tenant in or on the Additional Space shall be performed in accordance with the terms and conditions of

the Lease. From and after the Additional Space Effective Date, all references in the Lease to the "Premises" shall mean, as the context shall require, the Existing Premises, Storage Space and Additional Space, collectively. Prior to entering the Additional Space, Tenant shall obtain all insurance Tenant is required to obtain by the Lease as to the Additional Space and shall provide certificates of said insurance to Landlord.

2. Use. The Additional Space may be used solely for non-chemical storage use and for no other purpose, subject to the terms and conditions of the Lease, and provided that chemical storage may be permitted with Landlord's prior written consent.

3. Term. The term of the Lease with respect to the Additional Space shall commence on the Additional Space Effective Date and shall be otherwise coterminous with the term of the Existing Premises under the Lease expiring on April 14,2012 (the "Additional Space Termination Date"), unless otherwise terminated pursuant to the terms and conditions of the Lease.

4. Landlord's Termination Right. Landlord shall have the right to terminate the Lease with respect to the Additional Premises at any time upon sixty (60) days written notice to Tenant. In the event of such election, Tenant shall surrender the Additional Premises in accordance with the terms of the Lease on the date set forth in the termination notice.

5. Yearly Rent. Commencing on the Additional Space Effective Date and continuing through and including the Additional Space Termination Date, the Yearly Rent for the Additional Space shall be $76,368.00, payable in monthly installments of $6,364.00. The Yearly Rent for the Additional Space shall be payable in accordance with the terms of the Lease and shall be in addition to the Yearly Rent and all other amounts due and payable by Tenant pursuant to the Lease. Tenant's obligation to pay Taxes, Operating Costs and parking expenses for the Additional Space shall commence on me Additional Space Effective Date.

6. Tenant's Proportionate Shares. Commencing on the Additional Space Effective Date, Tenant's Proportionate Common Area Share shall be 10.32% and Tenant's Proportionate Building Share shall be 29.78% payable in accordance with the terms of the Lease. Landlord reserves the right, throughout the term of the Lease, to recalculate the Total Rentable Area of the Building and/or the Complex and Tenant's Proportionate Common Area and Building Shares shall be adjusted accordingly.

7. Utilities. Commencing on the Additional Space Effective Date, Tenant shall pay the cost for its use of utilities in the Additional Space including the consumption of electricity for plugs, lights and heat pumps which consumption shall be measured by checkmeter.

8. Parking. As of the Additional Space Effective Date, Tenant shall be entitled to an additional five (5) monthly parking passes available to Tenant for use in the OKS Garage pursuant to, and in accordance with, Section 29.19 of the Lease, except that the parties acknowledge and agree that the

monthly charge for such passes shall be based upon market rates then charged in the OKS Garage and in similar garages located in the East Cambridge/Kendall Square market, as such rates may vary from time to time (as of the date of this Seventh Amendment the market rate is $220.00 per month).

9. Brokers. Landlord and Tenant each warrant and represent to the other that they have dealt with no brokers in connection with the negotiation or consummation of this Seventh Amendment other than Colliers Meredith & Grew and FHO Partners (collectively, the "Broker") and in the event of any brokerage claim against either party by any person claiming to have dealt with either Landlord or

Tenant in connection with this Seventh Amendment, other than the Broker, the party with whom such person claims to have dealt shall defend and indemnify the other party against such claim.

10. Reaffirmation. In all other respects the Lease shall remain unmodified and shall continue in full force and effect, as amended hereby. The parties hereby ratify, confirm, and reaffirm all of the terms and conditions of the Lease, as amended hereby.

[Signatures Appear on Following Page]

IN WITNESS WHEREOF the parties hereto have executed this Seventh Amendment to Lease on the date first written above in multiple copies, each to be considered an original hereof, as a sealed instrument.

LANDLORD:

RB KENDALL FEE, LLC

By: /s/ Robert L. Beal
Robert L. Beal, its authorized signatory

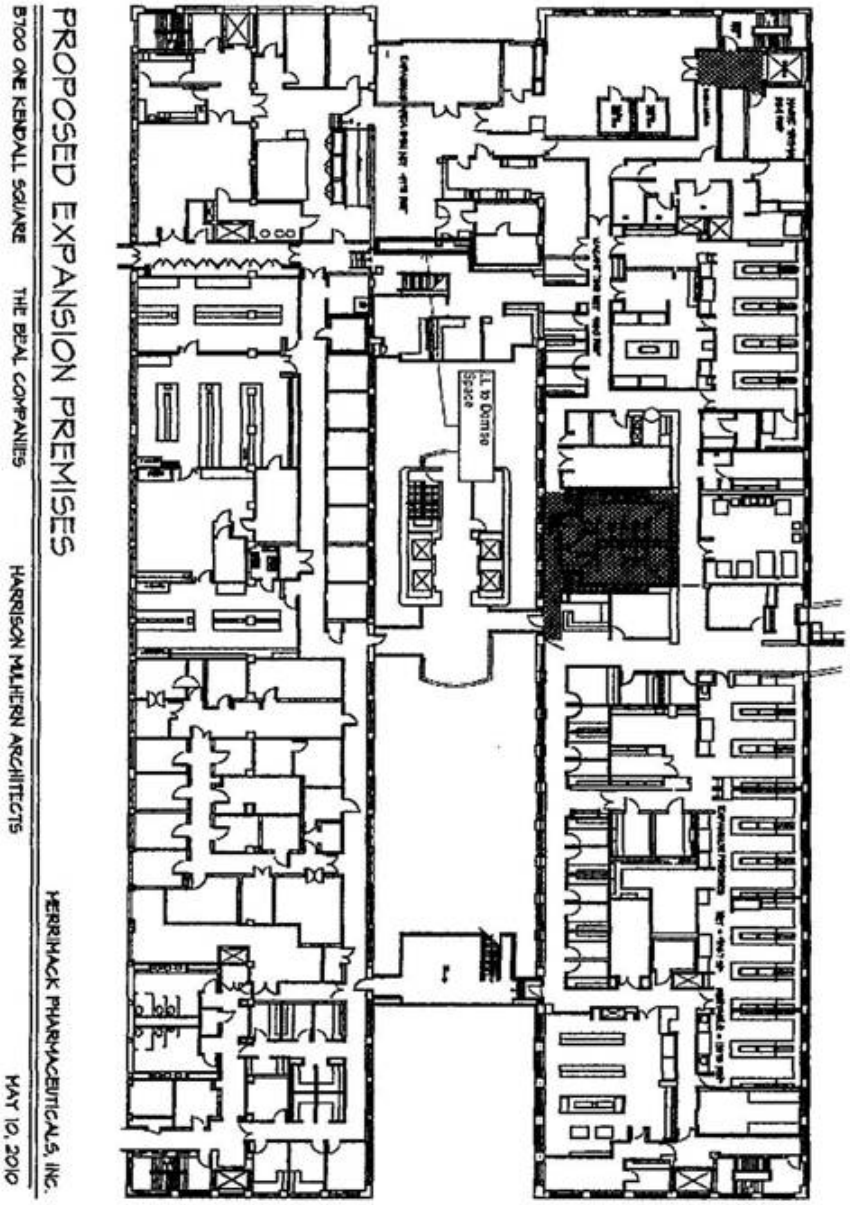
TENANT:

MERRIMACK PHARMACEUTICALS, INC.

By: /s/ Edward J. Stewart
Name: Edward J. Stewart
Title: SVP, Business Development

EXHIBIT A-1, SEVENTH AMENDMENT

LEASE PLAN FOR ADDITIONAL SPACE



EIGHTH AMENDMENT OF LEASE

THIS EIGHTH AMENDMENT OF LEASE (the "Eighth Amendment") is made as of the 31st day of March 2011 (the "Effective Date") by and between **RB KENDALL FEE, LLC** ("Landlord") and **MERRIMACK PHARMACEUTICALS, INC.**, having a mailing address at One Kendall Square, Building 600/700, Cambridge, Massachusetts 02139 ('Tenant").

BACKGROUND:

A. Reference is made to a certain Lease dated May 12, 2006 by and between Landlord and Tenant as amended by (i) First Amendment of Lease dated March 23, 2007, (ii) Second Amendment of Lease dated as of July 1, 2007, (iii) Third Amendment of Lease dated as of April 1, 2008; (iv) Fourth Amendment of Lease dated November 17,2008; (v) Fifth Amendment of Lease dated July 6, 2009; and (vi) Sixth Amendment of Lease dated January 27, 2010 and (vii) Seventh Amendment of Lease dated as of June 29, 2010 (collectively, the "Lease"), demising approximately 31,747 rentable square feet of space on a portion of the second floor of Building 600/650/700 (the "2nd Floor Space") and approximately 4,773 rentable square feet of space on the fourth (4th) floor of Building 650/700 (the "Additional Space")(the 2nd Floor Space and the Additional Space may be referred to collectively herein as the "Extension Premises I") and approximately 18,748 rentable square feet of space on a portion of the fourth (4th) floor of Building 600 (the "600 4th Floor Space"), approximately 11,878 rentable square feet of space on a portion of the fourth (4th) floor of Building 700 (the "700 Expansion Space") (the 600 4th Floor Space and the 700 Expansion Space may be referred to collectively herein as the "Extension Premises II") and approximately 3,054 rentable square feet of space in the basement of Building 600/650/700 (the "Storage Space") in One Kendall Square, Cambridge, Massachusetts (the "Complex"). Capitalized terms used but not defined herein shall have the same meaning as in the Lease.

B. Landlord and Tenant are the current holders, respectively, of the lessor's and lessee's interests in the Lease.

C. Landlord and Tenant want to extend the term of the Lease, expand the premises demised under the Lease to include additional space within Building 700 in the Complex and to further to amend the Lease as set forth herein.

AGREEMENTS:

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Landlord and Tenant hereby agree and amend the Lease as follows:

1. New Premises. Effective upon the earlier of (i) July 1, 2011 and (ii) the date that Tenant occupies the New Premises (as hereinafter defined) for business purposes (the "New Premises Effective Date"), the approximately 7,245 rentable square feet of space located on the mezzanine level of Building 700 within the Complex, as shown on Exhibit A-1 (the "New Premises") shall be deemed added to and incorporated into the Premises demised under the Lease. Upon the New Premises Effective Date all references to the Premises in the Lease shall include the New Premises and all references to Exhibit A in the Lease shall be deemed to include and refer to Exhibit A-1 as well, as applicable. The New Premises shall be delivered free of all occupants, personal property, trade fixtures and equipment, with all base Building systems (including, without limitation, the HVAC and MEP systems) serving the New Premises (the "New Premises Systems") in good working order and shall be delivered to Tenant in "as-is", "where-is" condition without any warranty of fitness for use or occupancy, expressed or implied, except as

expressly set forth herein. Tenant agrees that Landlord has no work to perform in or on the New Premises to prepare same for Tenant's use and occupancy except to steam clean the carpets contained therein. Any work to be completed by Tenant in or on the New Premises shall be performed in accordance with the terms and conditions of the Lease. From and after the New Premises Effective Date, all references in the Lease to the "Premises" shall mean, as die context shall require, the Extension Premises I, Extension Premises II, Storage Space and New Premises, collectively. Prior to entering the New Premises, Tenant shall obtain all insurance Tenant is required to obtain by the Lease as to the New Premises and shall provide certificates of said insurance to Landlord.

Landlord hereby represents to Tenant that, as of the Effective Date of this Amendment, the New Premises Systems are in good working order. Tenant shall have the right, prior to the date that is thirty (30) days after the New Premises Effective Date, to determine whether the New Premises Systems are, in fact, in good operating order. If Tenant believes that the New Premises Systems are not in good working order, then Tenant may give Landlord written notice ("Defect Notice") prior to the date that is thirty (30) days after the New Premises Effective Date. The Defect Notice shall set forth, with specificity, the manner in which the New Premises Systems are in violation of Landlord's representation under this Section. If Tenant fails to give a Defect Notice prior to the date that is thirty (30) days after the New Premises Effective Date, then Tenant shall conclusively be deemed to have agreed that the New Premises Systems were in good working order as of the Effective Date. If Landlord agrees that the New Premises Systems are not in good working order, Landlord shall, at no cost to Tenant, perform any work necessary to place the New Premises Systems in good working order. Landlord shall have the right, which right shall be exercisable by written notice to Tenant given on or before the date seven (7) days after Landlord receives the Defect Notice, to object to the Defect Notice. Any dispute under this Section may be submitted to arbitration in accordance with the provisions of Article 29.5 of the Lease. It if is either agreed by the parties, or determined by the arbitrator, that the New Premises Systems were not in good working order as of the Effective Date, then Landlord shall, promptly after such agreement or determination, perform any work necessary to place the New Premises Systems in good working order. The provisions of this Section set forth Tenant's sole rights and remedies in the event of any breach by Landlord of its representations and obligations under the Section. Nothing herein shall relieve Landlord from its maintenance and repair obligations pursuant to Article 8.5 of the Lease.

2. Use. The New Premises may be used solely for office use and for no other purpose, subject to the terms and conditions of the Lease, and further provided that chemical storage is prohibited.

3. Term. a. The term of the Lease with respect to the New Premises shall commence on the New Premises Effective Date and shall expire on April 30, 2013, unless otherwise terminated or extended pursuant to the terms and conditions of the Lease.

b. The term of the Lease with respect to the Extension Premises I is hereby extended to April 30, 2015, unless otherwise terminated or extended pursuant to the terms and conditions of the Lease.

c. The term of the Lease with respect to the Extension Premises II is hereby extended to April 30,2013, unless otherwise terminated or extended pursuant to the terms and conditions of the Lease.

d. The term of the license to use the Storage Space is hereby extended to April 30, 2013, unless otherwise terminated or extended pursuant to the terms and conditions of the Lease.

4. Yearly Rent. The Yearly Rent for the Premises during the extended terms shall be

payable in the amounts set forth in the tables below, in accordance with the terms of the Lease and shall be in addition to all other amounts due and payable by Tenant pursuant to the Lease. Tenant's obligation to pay Taxes and Operating Costs for the New Premises shall commence on the New Premises Effective Date.

New Premises

Period	Yearly Rent	Monthly Rent	Rent Per Rentable Square Foot
New Premises Effective Date — June 30,2012	$ 123,165.00	$ 10,263.75	$ 17.00
July 1,2012-April 30, 2013	$ 126,787.50	$ 10,565.63	$ 17.50
May 1,2013-April 30, 2014 (if applicable)	$ 130,410.00	$ 10,867.50	$ 18.00
May 1,2014-April 30, 2015 (if applicable)	$ 134,032.50	$ 11,169.38	$ 18.50

2nd Floor Space

Period	Yearly Rent	Monthly Rent	Rent Per Rentable Square Foot
April 15,2012-April 30,2013	$ 1,235,593.24	$ 102,966.10	$ 38.92
May 1,2013-April 30, 2014	$ 1,267,340.24	$ 105,611.69	$ 39.92
May 1,2014-April 30, 2015	$ 1,299,087.24	$ 108,257.27	$ 40.92

Additional Space

Period	Yearly Rent	Monthly Rent	Rent Per Rentable Square Foot
April 15, 2012-April 30, 2013	$ 95,460.00	$ 7,955.00	$ 20.00
May 1,2013-April 30, 2014	$ 100,233.00	$ 8,352.75	$ 21.00
May 1,2014-April 30, 2015	$ 105,006.00	$ 8,750.50	$ 22.00

600 4th Floor Space

Period	Yearly Rent	Monthly Rent	Rent Per Rentable Square Foot
April 15,2012-April 30,2013	$ 824,912.00	$ 68,742.67	$ 44.00
May 1,2013-April 30, 2014 (if applicable)	$ 843,660.00	$ 70,305.00	$ 45.00
May 1,2014-April 30, 2015 (if applicable)	5862,408.00	$ 71,867.33	$ 46.00

700 Expansion Space

Period	Yearly Rent	Monthly Rent	Rent Per Rentable Square Foot
April 15, 2012-April 30, 2013	$ 498,876.00	$ 41,573.00	$ 42.00
May 1,2013-April 30, 2014 (if applicable)	$ 510,754.00	$ 42,562.83	$ 43.00
May 1,2014-April 30, 2015 (if applicable)	$ 522,632.00	$ 43,552.67	$ 44.00

5. License Fee. During the extended terms of the Storage Space, Tenant shall pay to Landlord, in advance and as additional rent under the Lease without demand, offset or deduction, at the same time as monthly installments of Yearly Rent are due under the Lease, a license fee for the Storage Space equal to $3,054.00 per month (the ‘‘License Fee”) during each month of the term of the Lease.

6. Tenant’s Improvements: Landlord’s Contribution. (a) Tenant plans to complete certain Tenant’s leasehold improvements to the Premises (“Tenant’s Improvements”) in accordance with the terms and conditions of the Lease (as amended hereby). In connection with Tenant’s Improvements, Landlord shall contribute up to $380,964.00 (“Landlord’s Contribution”) in the aggregate toward the cost of the design and construction of Tenant’s Improvements. Landlord’s Contribution shall be paid, and requests therefor shall be made, in the manner provided in Section 4.2 of the Lease, except that Sections 4.2.C(iii) and (iv) are inapplicable. Landlord’s Contribution may be used toward ongoing or future Tenant’s Improvements in any portion of the Premises including the New Premises; provided, however, in the event Tenant does not exercise its option to the extend the term (as described in paragraph 12 below), then Landlord shall have no obligation to make any payments of landlord’s Contribution after

August 1, 2012.

(b) Tenant’s Improvements shall be effected in accordance with the terms and conditions of the Lease, including but not limited to Articles 11, 12 and 13 thereof. Without limiting the foregoing, Tenant shall obtain Landlord’s prior written consent for all of Tenant’s Improvements (and Plans and Specifications therefor [as defined below]), and the contractors, engineers, architects, technicians and mechanics effecting same, which consent shall not be unreasonably withheld, conditioned or delayed. Tenant shall be responsible for the preparation of construction plans and specifications, including but not limited to architectural, mechanical, electrical, plumbing, life-safety and other Building systems and interfaces therewith (collectively, the “Plans and Specifications”), and any specialty engineering necessary for the completion of Tenant’s Improvements, all of which shall be subject to Landlord’s prior written consent, which consent shall not be unreasonably withheld, conditioned or delayed. Landlord shall be entitled to deduct from Landlord’s Contribution all direct, reasonable third party out-of-pocket expenses incurred by Landlord in reviewing and approving the Plans and Specifications following delivery of detailed invoices for same to Tenant as well as a Construction Management Fee as set forth in Section 4.2E of the Lease. For the avoidance of doubt, the first ten (10) hours of any Construction Management Fee related to the Tenant’s Improvement shall be at no charge to Tenant.

(c) Tenant shall have the right to enter the New Premises after the Effective Date but prior to the New Premises Effective Date, during normal business hours and without payment of rent but with prior notice to the Building 700 property manager, to perform Tenant’s Improvements provided such entry must be coordinated so as not to interfere with the completion of Landlord’s carpet cleaning. Any such right of entry shall be subject to all provisions of this Lease (except for payment of rent), and any entry hereunder shall be at the risk of Tenant. Prior to such entry, Tenant shall provide Landlord with satisfactory evidence of insurance.

7. Tenant’s Proportionate Shares. Commencing on the New Premises Effective Date, Tenant’s Proportionate Common Area Share shall be 11.43% and Tenant’s Proportionate Building Share shall be 33.0% payable in accordance with the terms of the Lease. Landlord reserves the right, throughout the term of the Lease, to recalculate the Total Rentable Area of the Building and/or the Complex and Tenant’s Proportionate Common Area and Building Shares shall be adjusted accordingly.

8. Utilities. Commencing on the New Premises Effective Date, Tenant shall pay the cost for its use of utilities in the New Premises including the consumption of electricity for plugs, lights and heat pumps (if applicable) which consumption is separately metered either directly to the company or as billed by Landlord. If and so long as Tenant is billed directly by the electric utility for its own utility consumption in the Premises as determined by a separate meter, or billed directly by Landlord as determined by a check meter, then Operating Costs shall include only Building and public area electric current consumption and not any demised Premises electric current consumption.

9. Parking. As of the New Premises Effective Date, Tenant shall be entitled to seven (7) additional monthly parking passes available to Tenant for use in the OKS Garage pursuant to, and in accordance with, Section 29.19 of the Lease, except that the parties acknowledge and agree that the

monthly charge for such passes shall be based upon market rates then charged in the OKS Garage and in similar garages located in the East Cambridge/Kendall Square market, as such rates may vary from time to time (as of the date of this Eighth Amendment the market rate is $220.00 per month). To the extent same are available, Tenant has the option to obtain additional parking passes, on a month-to-month basis, and otherwise in accordance with the terms of the Lease.

10. Bathroom Renovations. Landlord agrees, at Landlord's sole cost and expense, to

refurbish in a good and workmanlike manner the two (2) common area bathrooms on the second (2) floor of Building 700 and the two (2) common area bathrooms on the fourth (4th) floor of Building 600 using building standard design and construction materials and finishes. Subject to delays caused by factors beyond the control of Landlord, Landlord shall complete the bathroom refurbishment no later than one hundred and eighty (180) days after the Effective Date of this Eighth Amendment. The refurbishment shall be consistent with oilier bathrooms in the Complex that have been recently refurbished and shall include but not be limited to, new ceilings, new lighting, new countertops, new sinks, electrostatic painting and repair of existing stalls, new tile grouting of existing tile floors and walls and painting of all non-tile horizontal surfaces.

11. Termination Right. The Landlord termination right contained in Section 4 of the Seventh Amendment of Lease is hereby deleted in its entirety and is of no further force and effect.

12. Initial Options to Extend the Term. Provided Tenant is not in default of any of its obligations under the Lease beyond the applicable notice and cure periods, and that Merrimack Pharmaceuticals, Inc., itself and/or any Permitted Transferees (as defined in Article 16 of the Lease) are occupying at least sixty-five percent (65%) of the Total Rentable Area of the Premises then demised to Tenant, both at the time of the option exercise and at the time of commencement of the herein described extended term, Tenant shall have the option to extend the term of this Lease for the 600 4th Floor Space, the 700 Expansion Space, the Storage Space and/or the New Premises for two (2) additional one (1) year terms (each, an "Extension Term"). Tenant shall not be required to extend the term for all such spaces but may elect to extend with respect to individual spaces. The first Extension Term shall commence on May 1, 2013, and expire on April 30, 2014. The second Extension Term shall commence on May 1, 2014, and expire on April 30,2015. Tenant may exercise the option to extend for the first Extension Term by giving Landlord written notice no later than August 1, 2012, and for the second Extension Term by giving Landlord written notice no later than August 1, 2013. Upon the timely giving of such notice, the term of the Lease with respect to the portion of the Premises so extended in said notice(s) shall be deemed extended upon all of the terms and conditions of the Lease, except that Landlord shall have no obligation to complete any work within the Premises or provide any additional Landlord contribution (in excess of the Landlord's Contribution set forth in Section 6 of this Eighth Amendment) in connection therewith and the Yearly Rent during the respective Extension Term shall be as set forth in Section 4 of this Eighth Amendment. If Tenant fails to give timely notice as provided in this paragraph, Tenant shall have no further right to extend the term of this Lease.

13. Final Option to Extend. Tenant shall have the right to further extend the term of the Lease with respect to all of Premises then under lease to Tenant for one (1) final Additional Term of five (5) years in accordance with the provisions of Section 29. 14 of the Lease; provided, however, that (i) Section 29.14A is hereby revised to provide that (A) the Additional Term shall commence as of May 1, 2015 (the "Additional Term Commencement Date") and shall expire on April 30,2020, (B) the Extension Notice shall be given by Tenant, if at all, no later May 1, 2014; and (ii) the Yearly Rent during the final Additional Term shall be determined as set forth in Sections 29.14 and 29.15 of the Lease except that the second sentence of Section 29.14B shall be revised to read in its entirety as follows: "Landlord shall upon written request from Tenant, made on or after the date of the Extension Notice, advise Tenant of Landlord's offer ("Landlord's Offer") as to the Yearly Rent which will be payable by Tenant during the Additional Term within fifteen (15) days after Landlord receives such request from Tenant."

14. Non-Renewal Fee. In the event Tenant does not elect to exercise its first Extension Term on any portion of the Premises subject to such extension option, then Tenant shall pay to Landlord, no later than March 15, 2013, a non-renewal fee equal to two (2) months of Yearly Rent and License Fee, as applicable, payable for each portion of the Premises for which the term was not extended, at the same

Yearly Rent and License Fee as due during the period immediately prior to May 1,2013. In the event Tenant does not elect to exercise its second Extension Term on any portion the Premises subject to such extension option, then Tenant shall pay to Landlord, no later than March 15,2014, a non-renewal fee equal to one (1) months of the Yearly Rent and License Fee, as applicable, payable for each portion of the Premises for which the term was not extended, at the same Yearly Rent and License Fee as due during the period immediately prior to May 1, 2014. Landlord shall have the same rights and remedies which Landlord has upon the nonpayment of Yearly Rent and other charges due under the Lease for nonpayment of any amounts which Tenant is required to pay to Landlord under this paragraph 14.

15. Insurance. Section 15.1 of the Lease is amended such that the minimum coverage amount required on Tenant's Commercial General Liability Insurance policy is increased from $2,000,000 to $3,000,000.

16. Brokers. Landlord and Tenant each warrant and represent to the other that they have dealt with no brokers in connection with the negotiation or consummation of this Eighth Amendment other than Colliers Meredith & Grew and FHO Partners (collectively, the "Broker") and in the event of any brokerage claim against either party by any person claiming to have dealt with either Landlord or Tenant in connection with this Eighth Amendment, other than the Broker, the party with whom such person claims to have dealt shall defend and indemnify the other party against such claim.

17. Reaffirmation. In all other respects the Lease shall remain unmodified and shall continue in full force and effect, as amended hereby. The parties hereby ratify, confirm, and reaffirm all of the terms and conditions of the Lease, as amended hereby.

[Signatures Appear on Following Page]

IN WITNESS WHEREOF the parties hereto have executed this Eighth Amendment to Lease on the date first written above in multiple copies, each to be considered an original hereof, as a sealed instrument.

LANDLORD:

RB KENDALL FEE, LLC

By: /s/ Robert L. Beal
Robert L. Beal, its authorized signatory

TENANT:

MERRIMACK PHARMACEUTICALS, INC.

By: /s/ William Sullivan
Name: William Sullivan
Title: VP of Finance

EXHIBIT A-1, EIGHTH AMENDMENT

LEASE PLAN FOR NEW PREMISES

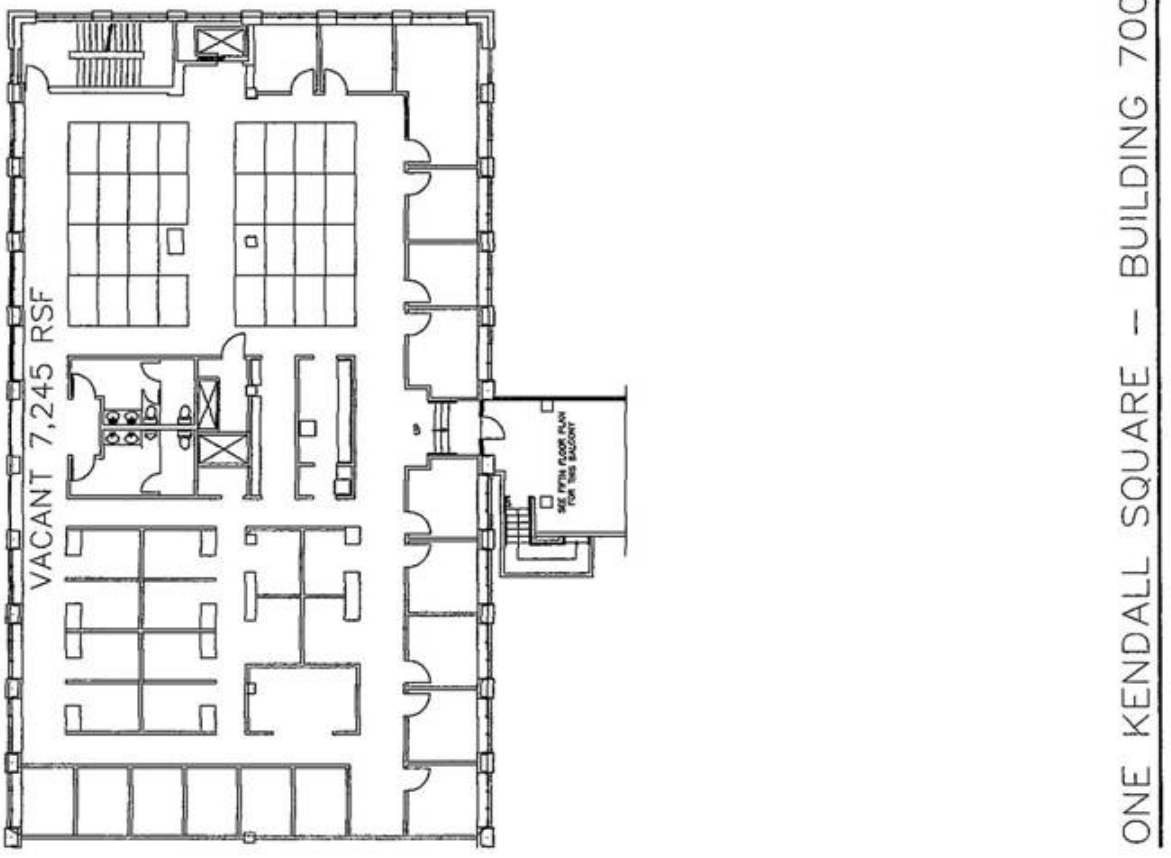


Exhibit 10.14

Sublease

By and Between

FibroGen Inc.

And

Silver Creek

Table of Contents

SUBLEASE

This SUBLEASE ("Sublease") is effective as of August 6, 2010 ("Effective Date"), by and between FibroGen, Inc., a Delaware Corporation ("FibroGen"), and Silver Creek ("Subtenant").

1. BACKGROUND

1.1 Under a lease dated September 22, 2006 ("Master Lease") by and between X-4 Dolphin LLC, on behalf of Shorenstein Properties, LLC ("Master Lessor") and FibroGen, a redacted copy of which is attached hereto and incorporated herein as Exhibit D, Master Lessor has Subleased to FibroGen a building located at 409 Illinois Street, San Francisco, California containing approximately 234,000 rentable square feet ("409 Building") for a period commencing upon the completion of the Building, as defined in the Master Lease, and expiring on the fifteen (15) year anniversary thereof.

1.2 Subtenant wishes to sublease from FibroGen and FibroGen wishes to sublet to Subtenant certain office and laboratory space located in the 409 Building (the Subleased Premises) as defined in Paragraph 2.1 below.

1.3 Subtenant wishes to acquire services associated with the use of the Subleased Premises, and FibroGen is willing to provide such services as specified herein.

THE PARTIES AGREE AS FOLLOWS:

2. SUBLEASE

2.1 Conditioned upon receipt of Master Lessor's written consent, FibroGen hereby subleases to Subtenant and Subtenant hereby takes from FibroGen certain real property as described below (the "Subleased Premises") comprising approximately a total grossed-up footprint equaling Seven Hundred and Fifty-six (756) square feet as follows:

a) In the laboratory area #5115; office area #5202 and open area #5221.

b) The Sublease Premises may be increased upon the mutual agreement of the parties hereto in the form of a signed amendment to this Sublease. However, it is expressly understood that neither party hereto is obligated to enter into such an amendment.

2.2 Subtenant shall also have the non-exclusive right to use, in common with other Subtenants in the Building, any and all of the following areas which may be appurtenant to the Premises: common entrances, lobbies, elevators, stairways, corridors, and access

ways, public restrooms, FibroGen Gym (subject to payment as specified in Exhibit A), Cafe, and common walkways and sidewalks necessary for access to the Premises.

3. TERM AND TERMINATION

3.1 The term ("Term") of this Sublease will commence on September 1, 2010 ("Sublease Commencement Date").

3.2 This Sublease will expire on:

a) September 1, 2011 ("Expiration Date"), unless Subtenant requests for an extension to the Sublease for another six (6) months in writing to FibroGen no later than thirty (30) days in advance of the Expiration Date.

3.3 It is expressly understood, notwithstanding the terms stated above, that either party hereto may terminate this Sublease for cause pursuant to Paragraphs 9.6 and 15.2 of this Sublease.

3.4 Either party hereto may terminate this Sublease at any time by giving sixty (60) days' written notice to the other.

3.5 Notwithstanding any terms contained herein, it is Subtenant's sole responsibility to place the Premises in the surrender condition required by FibroGen and Master Lessor not later than the Expiration Date, including, but not limited to, covering all costs of decertification and decommissioning (if required).

3.6 On the Sublease Commencement Date, FibroGen shall deliver possession of the Premises to Subtenant in the condition required by Paragraph 11.2. No rent shall accrue under this Sublease, nor shall Subtenant have any obligation to perform the covenants or observe the conditions herein contained until the Premises have been so delivered. If FibroGen's ability to deliver possession by the date as set forth in this provision is delayed as a result of any of the following causes, the date for delivery shall be postponed without penalty to FibroGen for a period of time equivalent to the period caused by such delay:

a) acts of Subtenant, its agents, or employees;

b) acts of God which FibroGen could not reasonably have foreseen or guarded against;

c) any strikes, boycotts or like obstructive actions by employees or labor organizations and which are beyond the control of FibroGen and which cannot be reasonably overcome; or

d) restrictive regulations by a governmental agency.

4. RENT AND OTHER AMOUNTS.

4.1 Subtenant shall pay a monthly rent ("Rent") to FibroGen for the Subleased Premises according to the following schedule:

Months	Rent/Sq.Ft./Mo.	Total Sq. Ft.	Amount/Mo.
September 2010 – Expiration Date	$ 6.80	756	$ 5,174.80

Rent shall cover the following expenses:

a) Operating expenses comprising property tax and insurance, normal utility charges, exterior building maintenance, maintenance of mechanical systems that are currently in place, normal recurring building maintenance, janitorial service according to FibroGen's generally accepted office and laboratory cleaning standards, normal office and laboratory waste removal, a pro-rata share (based on the area actually subleased by Subtenant at the time of the emergency) of the emergency electrical backup generation services available to the 409 Building, and security systems (including issuance of up to 5 security entrance cards).

b) Those services specified in Paragraph 5.1 below.

4.2 All Rent shall be payable without deduction or offset in advance on the first day of each month during the Term provided however, the first month's Rent for the Subleased Premises will be paid to FibroGen no later than seven (7) days prior to the Sublease Commencement Date. Rent for any period during the term hereof which is for less than one month shall be a pro rata portion of the monthly installment. Rent shall be payable to FibroGen at the address stated herein or at such other address as FibroGen may from time to time designate in writing.

4.3 Except as expressly herein provided, any amount due FibroGen but not paid when due shall bear interest at the lesser of ten percent (10%) per annum or the maximum rate then allowable by law from the date due. Payment of such interest shall not excuse or cure any default by Subtenant under this Sublease, provided, however, that interest shall not be payable on late charges incurred by Subtenant nor on any amounts upon which late charges are paid by Subtenant.

5. SERVICES

5.1 Included lab services are limited to the systems that are in place on the Sublease Commencement Date to supply de-ionized water (DI) water, house vacuum, and compressed air. It is expressly understood that no gases (other than compressed air) will be supplied to the Subleased Premises by FibroGen. However, FibroGen will (at no cost to Subtenant) install wall mounts to secure laboratory gas cylinders in the Subleased Premises subject to the restrictions contained in Paragraph 9.5. FibroGen represents that

the DI water, house vacuum and compressed air are, and shall be, maintained by FibroGen in good working order.

a) Normal business hours for services provided by FibroGen employees or agents (such as receptionist, loading, and unloading) shall be from 8 am to 5 pm, Monday through Friday, FibroGen holidays and other infrequent dates and times reasonably designated by FibroGen excepted. No such services shall be available during nights, weekends, and FibroGen holidays.

5.2 Services and utilities not specified in Paragraph 5.1 above, shall be furnished and the cost borne as outlined in Exhibit A. If any such services are not separately metered to Subtenant, Subtenant shall pay a reasonable proportion to be determined by FibroGen of all charges jointly metered with other premises. In the event of failure by FibroGen to furnish, in a satisfactory manner, any of the services and utilities to the Premises for which FibroGen is responsible, Subtenant may furnish the same if FibroGen has not undertaken to correct such failure within five (5) days after written notice, and, in addition to any other remedy Subtenant may have, may deduct the amount thereof, including Subtenant's service costs, from rent or other remuneration due FibroGen hereunder.

5.3 Charges for all services provided hereunder shall be invoiced on the fifteenth (15th) day of each month immediately following the provision of the service and shall be due and payable along with the next rent payment due after receipt of the invoice for such services.

5.4 Exhibit A may be amended in a signed writing to include new service or remove existing services as mutually acceptable to the parties hereto.

6. TAXES

6.1 FibroGen specifically calls to Subtenant's attention the fact that this Sublease may create a possessory interest subject to property taxation, and Subtenant may be subject to property tax levied on such interest. Subtenant alone shall pay such tax. If the right is given to pay any of the taxes, assessments or other impositions which Subtenant is herein obligated to pay either in one sum or in installments, Subtenant may elect either mode of payment.

6.2 Subtenant shall pay prior to delinquency all taxes assessed against and levied upon trade fixtures, furnishings, equipment and all other personal property of Subtenant contained in the Premises or elsewhere. Subtenant shall cause said trade fixtures, furnishings, equipment and all other personal property to be assessed and billed separately from the real property of FibroGen.

7. SECURITY DEPOSIT

7.1 On or before the date of final signature by both parties hereto, Subtenant shall deposit with FibroGen a sum equal to one hundred percent (100%) of the first month's Rent; and on or before the Sublease Commencement Date, Subtenant shall deposit with FibroGen an additional sum equal to two hundred percent (200%) of the first month's Rent both sums as security for the full and faithful performance of each provision of this Sublease.

7.2 Subtenant shall provide a properly completed, signed and dated IRS Form W-9 or Form W-8BEN (as applicable, the "IRS W8/9 Form") to FibroGen.

7.3 If Subtenant defaults with respect to any provision of this Sublease, including, but not limited to, the provisions relating to the payment of Rent or other charges, FibroGen may use, apply or retain all or any part of said deposit for the payment of Rent or other charges in default; or for the payment of any other amount which FibroGen may spend or become obligated to spend by reason of Subtenant's default. If any portion of said deposit is so used or applied, Subtenant shall, within ten (10) days after written demand therefore, deposit cash with FibroGen in an amount sufficient to restore said deposit to the full amount hereinabove stated, and Subtenant's failure to do so shall be a material breach of this Sublease. If Subtenant fully and faithfully performs every provision required by this Sublease, said deposit, or so much thereof as has not theretofore been applied or credited by FibroGen shall be returned to Subtenant (or, at FibroGen's option, to the last assignee of Subtenant's interest hereunder) at the expiration of the term hereof. The making by Subtenant of such deposit, or the application thereof by FibroGen in the manner hereinabove provided, shall not constitute nor be construed as a limitation upon the exercise by FibroGen of any other rights or remedies provided to FibroGen under the terms of this Sublease in the event of Subtenant's default. In the event FibroGen sells or assigns FibroGen's interest in the 409 Building, FibroGen may assign said deposit to the purchaser of FibroGen's interest in the demised premises without liability to Subtenant. FibroGen's obligations with respect to the deposit are those of a debtor and not a trustee. FibroGen may maintain the deposit separate and apart from FibroGen's general funds or can commingle the deposit with FibroGen's general and other funds.

8. WARRANTY

8.1 FibroGen warrants that the Subleased Premises are non-toxic and asbestos free to the best of its knowledge subject to the conditions set forth in the Lease between the Master Lessor and FibroGen.

8.2 FibroGen further warrants that all laboratory space shall remain as equipped at the date of signature of the Sublease with case-goods and hoods. It is expressly understood that equipment specifically owned and used by FibroGen is not included hereunder.

8.3 Except for the warranty provided in Paragraph 8.1 and 8.2 above, the Subleased Premises and any cubicles, furniture, equipment, and fixtures provided hereunder are provided on an "as-is" basis WITHOUT WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER WARRANTY EXPRESS OR IMPLIED.

9. USE

9.1 Subtenant shall use the Subleased Premises for the purpose of laboratory research and development, and general office purposes consistent with the requirements and limitations set forth in the Master Lease and for no other purpose without the prior written consent of Master Lessor and FibroGen. In no case shall pets be allowed inside of the 409 Building.

9.2 Use of radioactive materials in the Subleased Premises is expressly prohibited without FibroGen's express written consent.

9.3 In addition to all duties required under this Sublease, it is expressly understood that Subtenant shall be responsible for complying with the provisions of the Master Lease (including Article 10 [Compliance with Laws and Regulations] therein) incorporated herein by Section 15.1 relating to hazardous materials. In no event shall Subtenant cause the classification of the 409 Building to be changed from its present classification (Level B).

9.4 Subtenant shall comply with all applicable federal, state and local regulations. Subtenant shall additionally comply with as all applicable policies and procedures of FibroGen, including but not limited to the FibroGen Safety Program and the Injury and Illness Prevention Program ("IIPP") appearing in Exhibit C. It is expressly understood that all chemical use by Subtenant shall be in compliance with the Hazard Materials Identification System (HMIS) appearing in Exhibit B.

9.5 Subtenant shall obtain FibroGen's express written authorization prior to using any gasses not listed below:

a) CO_2, CH_4, Nitrogen, O_2, Compressed Air, Liquid Nitrogen

9.6 Any breach of this Article 9, shall give FibroGen the right to terminate this Sublease upon fifteen (15) days written notice for any breach remaining uncured for a period of five (5) days from the date of FibroGen's initial written notice of Subtenant's breach.

10. CONFIDENTIALITY

10.1 Each party hereto acknowledges that it shares space with the other party and may come into contact with information in various forms (including visual, oral, written, graphic, or electronic) that may be deemed to be confidential and proprietary.

10.2 Each party hereto shall treat the Confidential Information of the other as proprietary and confidential and hold it in strict trust and confidence using at least the same degree of care as it uses to protect its own most highly confidential information, but in no event, using less than a reasonable degree of care. The receiving party shall NOT:

a) permit access to or disclose the Confidential Information to any unauthorized third party;

b) reverse engineer or reverse compile the Confidential Information;

c) make any commercial use of the Confidential Information;

d) use any Confidential Information to support any patent application or related filing; or

e) use Confidential Information for any purpose or in any manner which would constitute a violation of any laws or regulations, including without limitation the export control laws of the United States.

10.3 Each party hereto shall advise its officers, employees, independent contractors and business invitees who might have access to Confidential Information of the confidential nature thereof.

10.4 The knowledge of Confidential Information by one party shall not constitute any grant, option, or license to the other in any intellectual property rights or interest in the Confidential Information now or hereinafter.

10.5 The parties hereto agree that for any violation of any provision of this Section 10 (Confidentiality), the aggrieved party shall be entitled, in addition to any other remedies it may have and without the need to post a bond, to specific performance, injunctions or other appropriate remedies it may have for any such violation by the non-aggrieved party.

11. CONDITION OF SUBLEASED PREMISES; SURRENDER.

11.1 Subtenant shall accept the Subleased Premises in their “as is” condition.

11.2 FibroGen shall deliver the Premises to Subtenant clean and free of debris on the Sublease Commencement Date and FibroGen further warrants to Subtenant that the plumbing, lighting, air conditioning, and heating systems, in the Premises shall be in good operating condition on the Sublease Commencement Date. If this warranty has been

violated, then FibroGen shall, after receipt of written notice from Subtenant setting forth with specificity the nature of the violation, promptly, at FibroGen’s sole cost, rectify such violation. Subtenant’s failure to give such written notice to FibroGen within thirty (30) days after the Sublease Commencement Date shall cause the conclusive presumption that FibroGen has complied with all of FibroGen’s obligations hereunder.

11.3 Except as otherwise provided in this Sublease, Subtenant hereby accepts the Premises in the condition existing as of the Sublease Commencement Date or the date that Subtenant takes possession of the Premises, whichever is earlier, subject to all applicable zoning, municipal, county and state laws, ordinances and regulations governing and regulating the use of the Premises, and any covenants or restrictions of record, and accepts this Sublease subject thereto and to all matters disclosed thereby and by any exhibits attached hereto. Subtenant acknowledges that neither FibroGen nor any agent of FibroGen has made any representation or warranty as to the present or future suitability of the Premises for the conduct of Subtenant’s business.

11.4 Within ten (10) days of the Sublease Commencement Date of this Sublease, Subtenant shall provide FibroGen with a list (“Damage List”) of any defects or damage present in the Subleased Premises, and on the cubicles, furniture, equipment, or fixtures as reasonably observable by Subtenant. FibroGen shall have ten (10) business days to object to any defects or damage present on the Damage List. After the ten day period after Sublease Commencement Date, Subtenant shall be precluded from claiming any defect or damage was present in the Subleased Premises or on the furniture or cubicles if such defect or damage was not present on the Damage List prior to the Sublease Commencement Date.

11.5 Upon the expiration or termination date of this Sublease pursuant to Article 3.2, Subtenant shall surrender to FibroGen the Subleased Premises and any and all cubicles, furniture, equipment and fixtures supplied by FibroGen in the same condition and repair as received (ordinary wear and tear, damage, and casualty that Subtenant under the Master Lease has no obligation to restore or repair excepted), broom-clean, and otherwise in the condition required by the Master Lease and shall repair any damage to the Subleased Premises occasioned by the removal of Subtenant’s fixtures, furnishings, and equipment.

11.6 Upon surrender of the Subleased Premises, Subtenant shall warrant that the Subleased Premises are non-toxic and asbestos-free to the best of its knowledge to the extent they were at the time Subtenant took occupancy.

12. SUBORDINATION.

12.1 This Sublease is subject and subordinate to the Master Lease.

13. INDEMNIFICATION.

13.1 FibroGen shall indemnify, defend and hold harmless Subtenant, its officers, partners, agents, and employees from and against any claims, damages, costs, expenses, or liabilities (collectively "Claims") arising out of or in any way connected with this Sublease including, without limitation, Claims for loss or damage to any property, or for death or injury to any person or persons, but only in proportion to and to the extent that such Claims arise from the negligent or wrongful acts or omissions of FibroGen, its officers, agents, or employees.

13.2 Subtenant shall indemnify, defend and hold harmless FibroGen, its officers, agents, and employees from and against any Claims arising out of or in any way connected with this Sublease including, without limitation, Claims for loss or damage to any property or for death or injury to any person or persons, but only in proportion to and to the extent that such Claims arise from the negligent or wrongful acts or omissions of Subtenant, its officers, partners, agents, or employees.

13.3 Subtenant shall further indemnify FibroGen and the Master Lessor as provided in Subparagraph 14.4 of the Master Lease. The provisions that Subparagraph are hereby incorporated herein by reference subject to the following understandings:

a) The term "Tenant" as used in Subparagraph 14.4 of the Master Lease shall refer to Subtenant.

b) The term "Landlord" as used in Subparagraph 14.4 of the Master Lease shall refer to both FibroGen and the Master Lessor.

13.4 Intellectual Property Rights Indemnification. Subtenant acknowledges the shared nature of the 409 Building and the fact that various business entities and FibroGen's agents and employees may occupy portions of the 409 Building during the term of this Sublease. It is expressly understood that FibroGen can not guarantee Subtenant's privacy and protect its trade secrets within the 409 Building. With respect to any and all claims arising out of or connected to a breach of Subtenant's privacy and protection of its trade secrets associated with Subtenant's intellectual property rights, Subtenant hereby agrees to indemnify and hold FibroGen harmless against said claims.

14. INSURANCE.

14.1 Subtenant, at its sole cost and expense, shall insure its activities in connection with this Sublease and obtain, keep in force and maintain insurance as follows:

a) Commercial Form General Liability Insurance (contractual liability included) with minimum limits as follows:

i) Each Occurrence $ 1,000,000

ii) Products/Completed Operations Aggregate $ N/A

iii) Personal and Advertising Injury $ 1,000,000

iv) General Aggregate $ 2,000,000

If the above insurance is written on a claims-made form, it shall continue for three (3) years following termination of this Sublease. The insurance shall have a retroactive date of placement prior to or coinciding with the Sublease Commencement Date.

b) Business Automobile Liability Insurance for owned, scheduled, non-owned, or hired automobiles with a combined single limit of not less than one million dollars ($ 1,000,000) per occurrence.

c) Property, Fire and Extended Coverage Insurance in an amount sufficient to reimburse Subtenant for all of its equipment, trade fixtures, inventory, fixtures and other personal property located on or in the Premises including Subleasehold improvements hereinafter constructed or installed.

d) Workers' Compensation as required by California law.

e) Such other insurance in such amounts which from time to time may be reasonably required by the mutual consent of Subtenant and FibroGen against other insurable risks relating to performance.

14.2 The coverages referred to under 14.1a) and 14.1b) above shall include FibroGen as an additional insured. Such a provision shall apply only in proportion to and to the extent of the negligent acts or omissions of Subtenant, its officers, partners, agents, and employees.

14.3 Subtenant, upon the execution of this Sublease, shall furnish FibroGen with certificates of insurance evidencing compliance with all requirements. Certificates shall provide for thirty (30) days (ten [10] days for non-payment of premium) advance written notice to FibroGen of any material modification, change or cancellation of any of the above insurance coverages.

14.4 The coverages required herein shall not limit the liability of Subtenant.

14.5 **Waivers of Subrogation.** Notwithstanding the provisions of Article 13, Subtenant hereby waives any right of recovery against FibroGen due to loss of or damage to the property of Subtenant when such loss of or damage to property arises out of the acts of God or any of the property perils included in the classification of fire, extended perils ("all risk" as such term is used in the insurance industry) whether or not such perils have been insured, self-insured or non-insured.

14.6 **Exemption of FibroGen from Liability.** Notwithstanding the terms of Article 13, Subtenant hereby agrees that FibroGen shall not be liable for injury to Subtenant's

business or any loss of income therefrom or for damage to the goods, wares, merchandise or other property of Subtenant, Subtenant's employees, invitees, customers, or any other person in or about the Premises, nor shall FibroGen be liable for injury to the person of Subtenant, Subtenant's employees, agents or contractors, as a result of any condition of the Premises or the 409 Building, whether such damage or injury is caused by or results from fire, steam, electricity, gas, water or rain, or from the breakage, leakage, obstruction or other defects of pipes, sprinklers, wires, appliances, plumbing, air conditioning or lighting fixtures, or from any other cause in or about the Premises, whether the said damage or injury results from conditions arising in the Premises or in other portions of the 409 Building, or from other sources or places and regardless of whether the cause of such damage or injury or the means of repairing the same is inaccessible to Subtenant. FibroGen shall not be liable for any damages arising from any act or neglect of any other Subtenant, if any, of the 409 Building.

15. MASTER LEASE

15.1 Except for:

- Paragraph 14.4 of the Master Lease that is incorporated by reference hereinabove;
- the following Paragraphs of the Master Lease (which are not incorporated into this Sublease): 1.12, 1.15, 2.6, 3.1, 3.4, 11.1, 13.3, 13.4, 23.1, 24.1(d), 27.1, 35.2, 35.24(a), and 35.24(b); and
- the following Articles of the Master Lease (which are not incorporated into this Sublease): 4, 5, 8, 12, 15, 16, 18, 19, 21, 33, and 34;

and to the extent not otherwise inconsistent with the agreements and understandings expressed in this Sublease or applicable only to the original parties to the Master Lease, the provisions of the Master Lease are hereby incorporated herein by reference subject to the following understandings:

a) Subtenant shall pay any real estate taxes, personal property taxes, and property insurance on its alterations, trade fixtures, and personal property that are not included in the Rent.

b) The term "Tenant" as used therein shall refer to Subtenant.

c) The term "Landlord" as used therein shall refer to FibroGen.

d) FibroGen shall not be obligated to exercise any options provided in the Master Lease.

e) All of Master Lessor's rights under the Master Lease shall inure to the benefit of FibroGen as well as to Master Lessor.

15.2 Each party hereto, respectively, shall perform and comply with the provisions of the Master Lease relating to Master Lessor's and Subtenant's obligations. Subtenant hereby assumes and agrees to perform all of the obligations of Subtenant under the Master Lease accruing or arising during the term of this Sublease in the manner and within the time required under the Master Lease provided, however, the obligation of Subtenant hereunder shall be interpreted to apply only to the extent to which the obligations of Subtenant under the Master Lease are applicable or allocable to the Subleased Premises. Subtenant further covenants that Subtenant will neither commit nor permit to be committed by any third party, any act or omission which would violate any term or condition of the Master Lease, or be the cause for termination of the Master Lease by Master Lessor. In any case where Master Lessor has the right to declare a default under the Master Lease, said right shall inure to the benefit of FibroGen.

15.3 FibroGen shall have all of the rights and remedies afforded Master Lessor under the Master Lease. In addition to exercising any other rights or remedies afforded to the Master Lessor under the Master Lease, FibroGen shall have the right (but not the obligation) to:

a) cure any such breach or default by Subtenant, with Subtenant to be obligated to reimburse FibroGen immediately upon demand for all costs (including costs of settlements, defense, court costs and attorneys' fees) which FibroGen may incur in effecting the cure of such breach or default;

b) reenter and retake possession of the Subleased Premises and immediately terminate this Sublease and Subtenant's interest in the Subleased Premises; and

c) have any and all rights and remedies now or hereafter afforded a landlord under applicable law, including but not limited to: (A) all of the remedies afforded under Section 1951.2 of the California Civil Code (or any successor statute or similar applicable statute), specifically including Subsection (a)(3) thereof with respect to recovering the worth at the time of award of the amount by which the unpaid Rent for the balance of the term of this Sublease after the time of award exceeds the amount of such rental loss that Subtenant proves could be reasonably avoided, and in respect to this paragraph, it is expressly agreed that an interest rate of ten percent (10%) per annum is to be used in computing the "worth at the time of award" with respect to the damages recoverable under Subsections (a)(1) and (a)(2) thereof, and (B) notwithstanding any abandonment of the Subleased Premises by Subtenant, the remedy afforded under Section 1951.4 of the California Civil Code (or any successor statute or similar applicable statute) of continuing the Sublease in effect and recovering from Subtenant, the Rent and other amounts payable hereunder as they become due under this Sublease.

15.4 Subtenant and FibroGen each represent and warrant that they have read and are familiar with the terms and conditions of the Master Lease.

16. ALTERATIONS AND REPAIRS

16.1 Subtenant shall make no alterations to the Premises without the prior written authorization of FibroGen.

17. ASSIGNMENT AND FURTHER SUBLETTING

17.1 Subject to Master Lessor and FibroGen's express written consent, Subtenant shall have the right to assign all or any portion of its interest under this Sublease or sublet all or any portion of the Subleased Premises to any third party, parent, subsidiary or affiliate of Subtenant; any party which results from any merger or consolidation of Subtenant; or any party which acquires all or substantially all the assets or stock of Subtenant.

17.2 Other than expressly permitted in Paragraph 17.1 above, Subtenant shall have no right to allow any other party to sublease, assign, or otherwise use the facilities referenced hereunder for any purpose without FibroGen's express written authorization.

18. BROKERS

18.1 FibroGen and Subtenant each represents and warrants to the other that it has not engaged any broker, finder or other person who would be entitled to any commission or fees in respect of the negotiation, execution or delivery of this Sublease and shall indemnify and hold harmless the other against any loss, cost, liability or expense incurred by the indemnified party as a result of any claim asserted by any such broker, finder or other person on the basis of any arrangements or agreements made or alleged to have been made by or on behalf of indemnifying party.

19. SIGNS

19.1 FibroGen shall add Subtenant's name to a placard located on in the reception area of the main lobby. Aside from the foregoing, Subtenant shall not have any other signs on the Subleased Premises or the 409 Building other than signs within the Subleased Premises for Subtenant's internal use and convenience.

20. NOTICE

20.1 Any notices or demands to be given pursuant to the Master Lease or this Sublease shall be in writing and shall be delivered personally or sent by registered or certified mail, return receipt requested, with all postage and fees prepaid, to FibroGen or Subtenant, respectively, at the following addresses, or at such other address as such party shall designate by written notice to the other party. Such addresses are:

FibroGen: **FibroGen, Inc.**
409 Illinois St.
San Francisco, CA 94158
Attention: CFO

Subtenant: **Silver Creek**
409 Illinois St.
San Francisco, CA 94158
Attention: President

Personal delivery may be accomplished by means of commercial "overnight" or "express" delivery services providing for written record or delivery, or otherwise. Such notices shall be deemed to have been received and to be effective for all purposes upon receipt or refusal to accept delivery at such address as indicated on the return receipt or other record of delivery, or (if earlier) on the second business day after being mailed in accordance with the requirements of this paragraph.

21. SEVERABILITY

21.1 The invalidity of any provision of this Sublease as determined by a court of competent jurisdiction, shall in no way affect the validity of any other provision hereof.

22. ENTIRE AGREEMENT

22.1 Attached hereto and incorporated herein are Exhibits A, B, C, and D which constitute part of this Sublease.

22.2 There are no oral agreements or understandings between the parties hereto affecting this Sublease. This Sublease cannot be changed or terminated orally but only by an agreement in writing signed by the party against whom enforcement or any waiver, change, modification or discharge is sought.

23. WAIVER

23.1 No waiver by FibroGen of any provision hereof shall be deemed a waiver of any other provision hereof or of any subsequent breach by Subtenant of the same or any other provision. FibroGen's consent to, or approval of, any act shall not be deemed to render unnecessary the obtaining of FibroGen's consent to or approval of any subsequent act by Subtenant. The acceptance of rent hereunder by FibroGen shall not be a waiver of any preceding breach by Subtenant of any provision hereof, other than the failure of

Subtenant to pay the particular rent so accepted, regardless of FibroGen's knowledge of such preceding breach at the time of acceptance of such rent.

24. HOLDING OVER

24.1 If Subtenant, with FibroGen's consent, remains in possession of the Premises or any part thereof after the expiration of the term hereof, such occupancy shall be a tenancy from month to month upon all the provisions of this Sublease pertaining to the obligations of Subtenant, with the exception of

rent which shall be at one hundred twenty-five percent (125%) of the then current rent, but all options and rights of first refusal, if any, granted upon the terms of this Sublease shall be deemed terminated and be of no further effect during said month to month tenancy.

25. BINDING EFFECT; CHOICE OF LAW

25.1 Subject to any provisions hereof restricting assignment or subletting by Subtenant, this Sublease shall bind the parties, their personal representatives, successors and assigns. This Sublease shall be governed by the laws of the State of California, and any legal dispute arising hereunder shall be adjudicated in a court of law located in San Francisco, California.

26. FIBROGEN ACCESS

26.1 FibroGen and FibroGen's agents shall have the right to enter the Premises at reasonable times, for the purpose of making alterations, repairs, improvements or additions to the Premises or to the Building as FibroGen may deem necessary or desirable. FibroGen and FibroGen's agents shall provide Subtenant with one (1) regular business day notice prior to entry of the Premises for the purpose of inspecting the same, showing the same to prospective purchasers, lenders, or lessees. Any entry by FibroGen and FibroGen's agents shall not impair Subtenant's operations more than reasonably necessary, and shall comply with Subtenant's reasonable security measures. Except in case of an emergency, FibroGen shall not enter the Premises (except for the performance of regular janitorial service) unless accompanied by a representative of Subtenant.

27. SECURITY

27.1 Subtenant assumes all responsibility for the protection of Subtenant, its agents and invitees from acts of third parties. FibroGen shall provide Subtenant with keys to the Premises, Building and the Incubator Lab at FibroGen's cost and expense.

28. NON-SOLICITATION

28.1 During the Term of this Sublease and for a period of six (6) months following the termination or expiration thereof, neither party hereto shall directly or indirectly induce or solicit any employee of the other party to leave their employment.

IN WITNESS WHEREOF, the parties hereto have executed this Sublease effective as of the day and year first above written.

FIBROGEN, INC.

JENNIFER KAJISA
Name

/s/ Jennifer S. Kajisa
Signature

SENIOR MANAGER, FINANCIAL REPORTING
Title

8/12/10
Date

SILVER CREEK

ULRIK NIELSEN
Name

/s/ Ulrik Nielsen
Signature

PRESIDENT
Title

8/20/10
Date

EXHIBIT A – SERVICES AND OTHER PROVISIONS

Service Charges

for

Premises Located at

Silver Creek - Service Charges for
409 Illinois Street, San Francisco, CA 94158

Mail/Receiving/Receptionist Support	**N/A Included in rent**
Security Guard Services	**N/A** Included in Rent
Security	
Cost/Security Card	Initial 5 no charge $25 each thereafter
Telecommunications/Data Support	
Infrastructure Charge	$70/month
Cost/month/phone	$10.33 each + monthly Usage charges
Installation charges (phone & voicemail)	$150 (one-time charge)
Custom IT Services (pay as you go)	
a. Helpdesk	$60/hour
b. Network Configuration	$120/hour
c. Server set-up	$150/hour
d. Secure wireless network	
– Wireless internet only	$70/month flat rate
– Wireless internet plus internal network access	$70/month, plus a $480 one-time set up fee
e. Secure Remote Access (via Cisco VPN software)	$70/month/user account Plus $480 one-time set up fee
f. Data Center Rack Space (1U = 1.75 inches of vertical rack space)	$120/1U/month, plus $240 one-time set up fee
*Any additional data drops or outlets beyond what is provided shall be charged separately	TBD
	$/Run
Glasswash/Autoclave Total Cost/run-glasswash/dryer	$40.00
Autoclave	$40.00
Glasswash/dryer and autoclave	$60.00
Parking	
Parking charge per day/ per vehicle *Can be included as a corporate cost or paid directly by employees	$24/day or $235/month
FibroGym - Workout Room (located on the 1st Floor)	$10/person/month
Conference Room With exception of conference rooms to be shared by all micro companies, charges for use of major conference rooms, will be based on length of time needed	

EXHIBIT B – HMIS

Fire Code Permit Amounts

For

Hazardous Materials

As allowed on Each Floor of the

409 Building

EXHIBIT C – THE INJURY AND ILLNESS PREVENTION PROGRAM

The

Injury and Illness

Prevention Program

September 2008

EXHIBIT D – MASTER LEASE (REDACTED)

Redacted copy of

The Lease Agreement

Between

Master Lessor

And

FibroGen

September 22, 2006

AMENDMENT NO. 1 TO SUBLEASE

THIS AMENDMENT NO. 1 (the "First Amendment") is effective as of February 1, 2011 (the "First Amendment Effective Date") by and between Silver Creek Pharmaceuticals ("Subtenant") and **FibroGen, Inc.** ("FibroGen"). This First Amendment amends the Sublease entered into by and between Subtenant and FibroGen on August 6, 2010 (the "Sublease"). Subtenant and FibroGen shall be referred to individually herein as a "Party", and collectively as, the "Parties". The Sublease and this First Amendment are collectively, "the Agreement".

WHEREAS, Subtenant wishes to occupy an additional 510 square foot portion of laboratory space of the 409 Illinois Building to the space Subtenant is currently subletting from FibroGen.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties agree as follows:

(1) Unless otherwise defined herein, all capitalized terms and phrases used in this First Amendment shall have the meaning ascribed to them in the Sublease.

(2) Section 2.1 of the Sublease is hereby deleted in its entirety and replaced with the following:

2.1 Conditioned upon receipt of Master Lessor's written consent, FibroGen hereby subleases to Subtenant and Subtenant hereby takes from FibroGen certain real property as described below (the "Subleased Premises") comprising approximately total grossed-up footprint equaling one thousand two hundred and sixty-six (1271) square feet as follows

(a) In Laboratory Area #5002 (equaling to: five hundred and ten (510) square feet);

(b) In the Laboratory Area #5115; Office Area #5202 and Open Area #5221 (equaling to: seven hundred and fifty-six (761) square feet); and

(c) The Sublease Premises may be increased upon the mutual agreement of the Parties hereto in the form of a signed amendment to this Sublease. However, it is expressly understood that neither Party hereto is obligated to enter into such an amendment.

(3) Section 4.1 of the Sublease is hereby amended with the following:

4.1 Subtenant shall pay a monthly rent ("Rent") to FibroGen for the Subleased Premises according to the following Schedule

Months	Rent/Sq.Ft./Mo.	Total Sq. Ft.	Amount/Mo.
September 2010 – January 2011	$ 6.80	761	$ 5,174.80
February 2011 – September 2011	$ 6.80	1271	$ 8,642.80

(4) This First Amendment, together with the Sublease, contains the entire understanding of the Parties with respect to the subject matter hereof. Except as otherwise provided herein, the Sublease has not been modified or amended and remains in full force and effect. All express or implied agreements and understandings, either oral or written, heretofore made with respect to subject matter herein are expressly superseded in this First Amendment.

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(5) This First Amendment may be executed in counterparts, each of which shall be deemed an original, and all of which together shall constitute one and the same instrument. Counterparts may be signed and delivered by facsimile and/or via portable document format (pdf), each of which shall be binding when sent.

IN WITNESS WHEREOF, the Parties have executed this First Amendment to the Sublease as of the First Amendment Effective Date.

FIBROGEN, INC.		**SILVER CREEK PHARMACEUTICALS**	
By:	/s/ Pat Cotroneo	By:	/s/ Ulrik Nielsen
Name:	PAT COTRONEO	Name:	ULRIK NIELSEN
Title:	CFO	Title:	CEO
Date:	1/20/2011	Date:	1/19/11

AMENDMENT NO. 2 TO SUBLEASE

THIS AMENDMENT NO. 2 (the "Second Amendment") is effective as of May 1, 2011 (the "Second Amendment Effective Date") by and between Silver Creek Pharmaceuticals ("Subtenant") and **FibroGen, Inc**. ("FibroGen"). This Second Amendment amends the Sublease entered into by and between Subtenant and FibroGen on August 6, 2010 (the "Sublease"), as amended pursuant to the First Amendment on February 1, 2011 (the "Prior Amendment"). Subtenant and FibroGen shall be referred to individually herein as a "Party", and collectively as, the "Parties".

WHEREAS, Subtenant wishes to occupy an additional 83 square foot portion of open office space of the 409 Illinois Building to the space Subtenant is currently subletting from FibroGen.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties agree as follows:

(1) Unless otherwise defined herein, all capitalized terms and phrases used in this Second Amendment shall have the meaning ascribed to them in the Sublease as amended by the Prior Amendment.

(2) Section 2.1 of the Sublease is hereby deleted in its entirety and replaced with the following:

2.1 Conditioned upon receipt of Master Lessor's written consent, FibroGen hereby subleases to Subtenant and Subtenant hereby takes from FibroGen certain real property as described below (the "Subleased Premises") comprising approximately total grossed-up footprint equaling one thousand three hundred and fifty-four (1354) square feet as follows

a) In Laboratory Area #5002 (equaling to: five hundred and ten (510) square feet);

b) In the Laboratory Area #5115; Office Area #5202 and Open Area #5221 (equaling to: eight hundred and forty-four (844) square feet); and

c) The Sublease Premises may be increased upon the mutual agreement of the Parties hereto in the form of a signed amendment to this Sublease. However, it is expressly understood that neither Party hereto is obligated to enter into such an amendment.

(3) Section 4.1 of the Sublease is hereby amended with the following:

4.1 Subtenant shall pay a monthly rent ("Rent") to FibroGen for the Subleased Premises according to the following Schedule

Months	**Rent/Sq.Ft./Mo.**	**Total Sq. Ft**	**Amount/Mo.**
September 1, 2010 – January 31, 2011	$ 6.80	761	$ 5,174.80
February 1, 2011 – April 30, 2011	$ 6.80	1271	$ 8,642.80
May 1, 2011 – August 31, 2011	$ 6.80	1354	$ 9,207.20

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(4) This Second Amendment, together with the Sublease as amended by the Prior Amendment, contains the entire understanding of the Parties with respect to the subject matter hereof. Except as otherwise provided herein and in the Prior Amendment, the Sublease has not been modified or amended and remains in full force and effect. All express or implied agreements and understandings that conflict with the terms of this Second Amendment, either oral or written, heretofore made with respect to subject matter herein are expressly superseded by this Second Amendment.

(5) This Second Amendment may be executed in counterparts, each of which shall be deemed an original, and all of which together shall constitute one and the same instrument. Counterparts may be signed and delivered by facsimile and/or via portable document format (pdf), each of which shall be binding when sent.

IN WITNESS WHEREOF, the Parties have executed this Second Amendment to the Sublease as of the Second Amendment Effective Date.

FIBROGEN, INC.		**SILVER CREEK PHARMACEUTICALS**	
By:	/s/ Pat Cotroneo	By:	/s/ Ulrik Nielsen

Name:	Pat Cotroneo	Name:	Ulrik Nielsen
Title:	CFO	Title:	President and CEO
Date:	5/4/2011	Date:	5/3/11

AMENDMENT NO. 3 TO SUBLEASE

THIS AMENDMENT NO. 3 (the "Third Amendment") is effective as of June 15, 2011 (the "Third Amendment Effective Date") by and between Silver Creek Pharmaceuticals ("Subtenant") and **FibroGen, Inc.** ("FibroGen"). This Third Amendment amends the Sublease entered into by and between Subtenant and FibroGen on August 6, 2010 (the "Sublease"), as amended pursuant to the First Amendment on February 1, 2011 and the Second Amendment on May 1, 2011 (the "Prior Amendments"). Subtenant and FibroGen shall be referred to individually herein as a "Party", and collectively as, the "Parties".

WHEREAS, Subtenant wishes to occupy an additional 348.33 square foot portion of the vivarium of the 409 Illinois Building to the space Subtenant is currently subletting from FibroGen and

WHEREAS, Subtenant agrees to pay an additional monthly rent and charges for IACUC review relating to the vivarium space as indicated in the attached Exhibit E hereto.

Now, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties agree as follows:

(1) Unless otherwise defined herein, all capitalized terms and phrases used in this Third Amendment shall have the meaning ascribed to them in the Sublease as amended by the Prior Amendments.

(2) Section 2.1 of the Sublease is hereby deleted in its entirety and replaced with the following:

2.1 Conditioned upon receipt of Master Lessor's written consent, FibroGen hereby subleases to Subtenant and Subtenant hereby takes from FibroGen certain real property as described below (the "Subleased Premises") comprising approximately total grossed-up footprint equaling one thousand seven hundred and thirty-eight point thirty-three (1738.33) square feet as follows:

a) In Vivarium Area #2010, #2012, #2014, #2016, #2018 and #2024 (equaling to three hundred forty-eight point thirty-three (348.33) square feet)

b) In Laboratory Area #5002 (equaling to: five hundred and ten (510) square feet);

c) In the Laboratory Area #5115; Office Area #5202 and Open Area #5221 (equaling to: eight hundred and forty-four (844) square feet); and

d) The Sublease Premises may be increased upon the mutual agreement of the Parties hereto in the form of a signed amendment to this Sublease. However, it is expressly understood that neither Party hereto is obligated to enter into such an amendment.

(3) Section 4.1 of the Sublease is hereby amended with the following:

4.1 Subtenant shall pay a monthly rent ("Rent") to FibroGen for the Subleased Premises according to the following Schedule:

Months	Rent/Sq.Ft./Mo	Total Sq. Ft.	Amount/Mo.
September 1, 2010 – January 31, 2011	$6.80	761.00	$5,174.80
February 1, 2011 – April 30, 2011	S6.80	1271.00	$8,642.80
May 1, 2011 – June 14, 2011	$6.80	1354.00	$9,207.20
June 15, 2011 – August 31, 2011	$6.50/vivarium	348.33	$2,264.15
(lab/office/vivarium)	$6.80/office/lab	1354.00	$9,207.20
		Total Sq. Ft.	Total Amt./Mo.
		1738.33	$11,471.35

(4) A new Section 3.7 is hereby added to the Sublease as follows:

3.7 FibroGen may terminate Subtenant's right to use the vivarium area specified in Section 2.1 a) above at any time by giving five business (5) days' written notice if Subtenant misuses the vivarium area in FibroGen's sole discretion. A misuse shall include, but not be limited to, any failure to meet the requirements of IACUC, or any other state or federal law, regulation, or guideline.

(5) Exhibit E entitled "Recap of Preclinical Facility Related Costs & Labor-Revised 4/12/11" is attached hereto and hereby added to the Sublease.

(6) A new Section 5.5 is hereby added to the Sublease as follows:

5.5 Fees. Expenses, and costs relating to the use of the vivarium and charges for IACUC review which are listed in Exhibit E, shall be invoiced on the fifteenth (15th) day of each month immediately following the provision of the charges and shall be due and payable along with the next rent payment due after receipt of the invoice for such charges.

(7) This Third Amendment, together with the Sublease as amended by the Prior Amendments, contains the entire understanding of the Parties with respect to the subject matter hereof. Except as otherwise provided herein and in the Prior Amendments, the Sublease has not been modified or amended and remains in full force and effect. All express or implied agreements and understandings that conflict

with the terms of this Third Amendment, either oral or written, heretofore made with respect to subject matter herein are expressly superseded by this Third Amendment.

(8) This Third Amendment may be executed in counterparts, each of which shall be deemed an original, and all of which together shall constitute one and the same instrument. Counterparts may be signed and delivered by facsimile and/or via portable document format (pdf), each of which shall be binding when sent.

IN WITNESS WHEREOF, the Parties have executed this Third Amendment to the Sublease as of the Third Amendment Effective Date.

FIBROGEN, INC.		**SILVER CREEK PHARMACEUTICALS**	
By:	/s/ Pat Cotroneo	By:	/s/ Ulrik Nielsen
Name:	Pat Cotroneo	Name:	Ulrik Nielsen
Title:	CFO	Title:	CEO
Date:	5/26/11	Date:	5/26/11

Exhibit E
Recap of Preclinical Facility Related Costs & Labor — Revised 4/12/11

I. VIVARIUM Administration:

FTE SUPPORT *per* Microcompany

***ADMINISTRATION**
(1) ASP Protocol, (1) Yearly Renewal, and up to (1) Amendment
(committee submission / PI notifications / records management)
(1) Animals Order
(review, enter requisition, obtain PO, place order w/vendor, email order confirmations)
(1) Animal Receipt
(manage animal orders / health / animal census records, prepare animal ID cage cards)
Order Food, Bedding, Disposable Supplies
(place orders w/vendors, receive / store / distribute)
Training Program
(coordinate training / procedure evaluations w/IACUC designated trainers/qualifiers, training record management)
Compliance Oversight
(animal welfare / IACUC protocol / institutional policies / preclinical facility policies / standard procedures / regulatory agencies monitoring and enforcement)
Occupational Health & Safety for Vivarium Users
(new user orientation & safely training, material documentation, updates, records management)

Above is based on one (1) Protocol *per year* (including up to one (1) Amendment) and 1 animal order *per month
5 hours/company/month @ $100/hr à $500/company/month

II. HUSBANDRY Services:

FTE SUPPORT for 200 MICE

HUSBANDRY
Animal Receipt (pick-up from warehouse, disinfect shipping crates, uncrate animals and distribute into prepared housing units, remove identifying labels from crates, stack crates for disposal, sweep & disinfect receiving area, submit receiving paperwork to office)

Cage Unit Set-Up (cages, fill cages w/bedding, cage lids, cage filter tops, cage card holders, cage identification cards, enrichment objects/nesting materials/snacks, rodent food, fill water bottles)
Cage Exchanges (load clean cage units onto cart and transport to animal holding room and relocate animals from soiled cage units into clean prepared cage units)
Soiled Cage Unit Break-Down (load soiled cage units onto cart and transport from animal holding room to dirty wash room, discard food, empty water bottles, remove cage unit objects and sort into washer containers, discard soiled bedding, empty soiled trash bins, sweep & disinfect dirty wash room)
Cage Washing (load cages into cage washer, cage washer operation, unload cages from cage washer)
Animal Holding Room Racks and Floor Sanitation
Animal Holding Room Complete Sanitation
Animal Health Observations / Holding Room Environmental Control Documentation (7 days/week, 365 days/yean assess animal health of general population & document, assess health of post-op/post-procedural animals & document, check food & water levels (supplement if necessary), document room temperature & humidity, check temperature setting & water levels in water circulating heating pads (supplement if necessary)

200 MICE (50 Cages)

30 hours/week @ $20/hr = $600/week = $2400/month à $800/company/month

III. <u>FOOD & BEDDING Estimates:</u>

Monthly **FOOD** estimate for **200 mice:** ~3 bags/month @$27.50/bag à **$82.50/month**

Monthly **BEDDING** estimate for **200 mice:** ~6 bags/month @$11/bag à **$66/month**

Food & Bedding cost estimate for **200 mice = $148/month à <u>$49.33/company/month</u>**

Monthly Costs <u>without</u> IACUC and /or Veterinary Services, per company:

	$ 500.00 Administration
	$800.00 Husbandry Services
	<u>$ 49.33 Food and Bedding</u>
Total:	**$1,349.33 per month per sub-tenant**

(Does not include IACUC and /or Veterinary Services)

IV. <u>FibroGen's IACUC Committee</u> à billed per activity below:

- IACUC ASP Committee Review Process @ $1000/ASP protocol
  (6 IACUC members @ $100/member x ~1.75 hours/member/ASP review)
- IACUC ASP Annual Renewal Committee Review Process @ $500/ASP
  (6 IACUC members @ $100/member x ~.75 hours/member/ASP renewal)
- IACUC ASP AMENDMENT full Committee Review Process @ $200/Amendment
  (6 IACUC members @ $100/member x ~.33 hours/member/ASP Amendment)

V. <u>Veterinary Services</u> à billed per services rendered below:

- Teleconference / Conference Calls @ $200/hr
- On-Site Training Services @ $200/hr
  - Hands On Training
  - Standard Procedure Qualification Evaluation
- Animal Health Evaluation / Treatments @ $200/hr

Exhibit 10.15

Confidential Materials omitted and filed separately with the
Securities and Exchang Commission. Asterisks denote omissions.

PUBLIC HEALTH SERVICE

PATENT LICENSE AGREEMENT — *NONEXCLUSIVE*

COVER PAGE

For PHS internal use only:

License Number:

License Application Number: [**]

Serial Number(s) of Licensed Patent(s) or Patent Application(s):

See. Appendix A

Licensee:

Merrimack Pharmaceuticals

Cooperative Research and Development Agreement (CRADA) Number (if a subject invention):

NONE

Additional Remarks:

NONE

Public Benefit(s):

See, Paragraphs 5.1, 10.3 and 10.4

This Patent License Agreement, hereinafter referred to as the "**Agreement**", consists of this Cover Page, an attached **Agreement**, a Signature Page, Appendix A (List of Patent(s) or Patent Application(s)), Appendix B (Fields of Use and Territory), Appendix C (Royalties), Appendix D ((Benchmarks and Performance), Appendix E (Commercial Development Plan), Appendix F (Example Royalty Report), and Appendix G (Royalty Payment Options). The Parties to this **Agreement** are:

1) The National Institutes of Health ("**NIH**") or the Food and Drug Administration ("**FDA**"), hereinafter singly or collectively referred to as "**PHS**", agencies of the United States Public Health Service within the Department of Health and Human Services ("**HHS**"); and

2) Merrimack Pharmaceuticals, Inc., a Massachusetts corporation, having offices at One Kendall Square, Building 700, Second Floor, Cambridge, Massachusetts 02139, and its **Subsidiaries**, as defined in Paragraph 2.16, hereinafter referred to as "**Licensee**."

PHS PATENT LICENSE AGREEMENT—*NONEXCLUSIVE*

PHS and **Licensee** agree as follows:

1. BACKGROUND

1.1 In the course of conducting biomedical and behavioral research, **PHS** investigators made inventions that may have commercial applicability.

1.2 By assignment of rights from **PHS** employees and other inventors, **HHS**, on behalf of the **Government**, owns intellectual property rights claimed in any United States or foreign patent applications or patents corresponding to the assigned inventions. **HHS** also owns any tangible embodiments of these inventions actually reduced to practice by **PHS**.

1.3 The Secretary of **HHS** has the authority to enter into this **Agreement** for the licensing of rights to these inventions under 35 U.S.C. §§200-212, the Federal Technology Transfer Act of 1986, 15 U.S.C. §3710(a), and the regulations governing the licensing of Government-owned inventions, 37 CFR Part 404. The Secretary of **HHS** has delegated to **PHS** the authority to enter into this **Agreement**.

1.4 **PHS** desires to transfer these inventions to the private sector through commercialization licenses to facilitate the commercial development of products and processes for public use and benefit.

1.5 **Licensee** desires to acquire commercialization rights to certain of these inventions in order to develop processes, methods, or marketable products for public use and benefit.

2. DEFINITIONS

2.1 "**Benchmarks**" mean the performance milestones that are set forth in Appendix D.

2.2 "**Collaborator**" means a third party to whom **Licensee** grants a sublicense, as provided for in Paragraph 4.1, for furthering research and development of the **Licensed Products** and **Licensed Processes** and where such sublicense does not include the right to (a) sell **Licensed Products**, (b) import or export **Licensed Products** for sale, (c) sell products produced using **Licensed Processes**, or (d) import or export products produced using **Licensed Processes** for sale.

2.3 "**Commercial Development Plan**" means the written commercialization plan detailed in Appendix E.

2.4 "**First Commercial Sale**" means the initial transfer by or on behalf of **Licensee** of **Licensed Products** or the initial practice of a **Licensed Process** by or on behalf of **Licensee**, or its **Sublicensees**, in exchange for cash or some equivalent to which value can be assigned for the purpose of determining **Net Sales**.

2.5 "**Government**" means the Government of the United States of America.

2.6 "**Licensed Fields of Use**" means the fields of use identified in Appendix B, Section I.

2.7 "**Licensed Patent Rights**" shall mean:

(a) Patent applications and PCT patent applications or patents listed in Appendix A, all divisions and continuations of these applications, all patents issuing from these applications, divisions, and continuations, and any reissues, reexaminations, and extensions of all these patents;

(b) to the extent that the following contain one or more claims directed to the invention or inventions disclosed in 2.7(a):

(i) continuations-in-part of 2.7(a);

(ii) all divisions and continuations of these continuations-in-part;

(iii) all patents issuing from these continuations-in-part, divisions, and continuations;

(iv) priority patent application(s) of 2.7(a); and

(v) any reissues, reexaminations, and extensions of all these patents; and

(c) to the extent that the following contain one or more claims directed to the invention or inventions disclosed in 2.7(a): all counterpart foreign and U.S. patent applications and patents to 2.7(a) and 2.7(b), including those listed in Appendix A; and

(d) Subject to the proviso that if the claims in any continuation-in-part as set forth in 2.7(b) or 2.7(c) are subject to a terminal disclaimer they would be considered part of the **Licensed Patent Rights**, **Licensed Patent Rights** shall *not* include 2.7(b) or 2.7(c) to the extent that they contain one or more claims directed to new matter which is not the subject matter disclosed in 2.7(a).

2.8 "**Licensed Processes**" means processes, which in the course of being practiced, would be within the scope of one or more claims of the **Licensed Patent Rights** that have not been held unpatentable, invalid or unenforceable by an unappealed or unappealable judgment of a court of competent jurisdiction. Notwithstanding the foregoing, for purposes of calculating **Net Sales** only **Licensed Processes** shall not include processes which are the subject of a patent application within the **Licensed Patent Rights** which patent application has been pending in excess of [**] years from the date it was actually filed and not its effective filing date.

2.9 "**Licensed Products**" means tangible materials, which in the course of manufacture, use, sale, or importation, would be within the scope of one or more claims of the **Licensed Patent Rights** that have not been held unpatentable, invalid or unenforceable by an unappealed or unappealable judgment of a court of competent jurisdiction. Notwithstanding the foregoing, for purposes of calculating **Net Sales** only **Licensed Products** shall not include processes which are the subject of a patent application within the **Licensed Patent Rights** which patent application has been pending in excess of [**] years from the date it was actually filed and not its effective filing date.

2.10 "**Licensed Territory**" means the geographical area identified in Appendix B, Section II.

2.11 "**Most Favored Licensee**" means that **Licensee** will not, with respect to any royalty payment to which said status is accorded, be subject to terms and conditions which are less favorable to **Licensee** than any other third party paying the same royalty payment with respect to a **Licensed Product** or **Licensed Process** within the **Licensed Field of Use**.

2.12 "**Net Sales**" means the total gross receipts for sales of **Licensed Products** or practice of **Licensed Processes** by or on behalf of **Licensee** or its **Sublicensees**, and from leasing, renting, or otherwise making **Licensed Products** available to others without sale or other dispositions, whether invoiced or not, less returns and allowances, discounts and charge-backs, rebates and refunds, retroactive price adjustments, packing costs, insurance costs, freight out, taxes or excise duties imposed on the transaction (if separately invoiced), and wholesaler and cash discounts in amounts customary in the trade to the extent actually granted. For avoidance of doubt, payment made to **PHS** shall only be due once for sales of **Licensed Products** or practice of **Licensed Processes** whereby such payments are made either by **Licensee** or its

Sublicensees, not both. No deductions shall be made for commissions paid to individuals, whether they are with independent sales agencies or regularly employed by **Licensee** or its **Sublicensees**, and on its payroll, or for the cost of collections.

2.13 "**Practical Application**" means to manufacture in the case of a composition or product, to practice in the case of a process or method, or to operate in the case of a machine or system; and in each case, under these conditions as to establish that the invention is being utilized and that its benefits are to the extent permitted by law or **Government** regulations available to the public on reasonable terms.

2.14 "**Pro Rata Share**" is used in reference to the amount of patent expenses to be reimbursed by **Licensee** in accordance with Paragraph 6.7 of this **Agreement**, and is calculated to be equal to one (1) divided by the total number of agreements including the **Licensed Patent Rights** that include the **Licensed Fields of Use** and is measured (a) for Future Patent Prosecution Expenses as set forth in Appendix C, Section VII(B) at the time when a request for payment thereof is made or (b) with respect to the calculation of the amount of any credit due to **Licensee** at the time of **First Commercial Sale** by **Licensee**.

2.15 "**Sublicensee(s)**" means a third party to whom **Licensee** grants a sublicense of the rights hereunder as described in Article 4.

2.16 "**Subsidiary**" of a party means any corporation, company, or other entity more than fifty percent (50%) of whose outstanding securities representing the right, other than as affected by events of default, to vote for the election of directors or other governing authorities are now or hereafter owned or controlled, directly or indirectly by such party, and where such party has the legal right to bind such **Subsidiary** to the terms of this **Agreement**, but such corporation, company or other entity shall be deemed to be a **Subsidiary** only so long as such control exists.

3. GRANT OF RIGHTS

3.1 **PHS** hereby grants and **Licensee** accepts, subject to the terms and conditions of this **Agreement**, (a) a nonexclusive license under the **Licensed Patent Rights** in the **Licensed Territory** to make and have made, to use and have used, to sell and have sold, to offer to sell, and to import any **Licensed Products** in the **Licensed Fields of Use** set forth in Appendix B, Section I, Paragraphs (a) and (b) and to practice and have practiced any **Licensed Processes** in the **Licensed Fields of Use** set forth in Appendix B, Section I, Paragraphs (a) and (b) and (b) a nonexclusive license under the **Licensed Patent Rights** and in the **Licensed Territory** to make and have made, to use and have used, but not to sell and have sold or to offer to sell and to import and **Licensed Products** in the **Licensed Field of Use** set forth in Appendix B, Section I, Paragraph (c) and to practice and have practiced any **Licensed Processes** in the **Licensed Field of Use** set forth in Appendix B, Section I, Paragraph (c).

3.2 This **Agreement** confers no license or rights by implication, estoppel, or otherwise under any patent applications or patents of **PHS** other than the **Licensed Patent Rights** regardless of whether these patents are dominant or subordinate to the **Licensed Patent Rights**.

3.3 Upon the Effective Date of this **Agreement**, the prior license, [**] effective August 30, 2005 by and between **PHS** and **Licensee** will be terminated.

4. SUBLICENSING

4.1 Upon written approval, which shall include prior review of any sublicense agreement by **PHS** and which shall not be unreasonably withheld and subject to the provisions regarding sublicenses granted to a **Collaborator** as set forth in this paragraph, **Licensee** may enter into sublicensing agreements in the **Licensed Fields of Use** and in the **Licensed Territory** for the **Licensed Patent Rights** only when **Licensee** is sublicensing additional intellectual property rights that belong to **Licensee** in conjunction with the **Licensed Patent Rights** to the **Sublicensee**. In the event that **Licensee** is granting the sublicense to a **Collaborator** for purposes of engaging in collaborative research efforts involving the **Licensed Patent Rights** such a sublicense is not required to include additional intellectual property that belongs to **Licensee**.

4.2 **Licensee** agrees that any sublicenses granted by it shall provide that the obligations to **PHS** of Paragraphs 8.1, 10.1, 10.2, 12.5, and 13.7-13.9 of this **Agreement** shall be binding upon the **Sublicensee** as if it were a party to this **Agreement**. **Licensee** further agrees to attach copies of these Paragraphs to all sublicense agreements.

4.3 Any sublicenses granted by **Licensee** shall provide for the termination of the sublicense, or the conversion to a license directly between the **Sublicensees** and **PHS**, at the option of the **Sublicensee**, upon termination of this **Agreement** under Article 13. This conversion is subject to **PHS** approval and contingent upon acceptance by the **Sublicensee** of the remaining provisions of this **Agreement**.

4.4 **Licensee** agrees to forward to **PHS** a complete copy of each fully executed sublicense agreement postmarked within thirty (30) days of the execution of the agreement. To the extent permitted by law, **PHS** agrees to maintain each sublicense agreement in confidence.

5. STATUTORY AND PHS REQUIREMENTS AND RESERVED GOVERNMENT RIGHTS

5.1 Prior to the **First Commercial Sale**, **Licensee** agrees to provide **PHS**, upon **PHS** request and subject to availability, with reasonable quantities of **Licensed Products** or materials made through the **Licensed Processes** for **PHS** *in vitro* research use.

5.2 **Licensee** agrees that products used or sold in the United States embodying **Licensed Products** or produced through use of **Licensed Processes** shall be manufactured substantially in the United States, unless a written waiver is obtained in advance from **PHS**.

6. ROYALTIES AND REIMBURSEMENT

6.1 **Licensee** agrees to pay **PHS** a noncreditable, nonrefundable license issue royalty ("Execution Fee") as set forth in Appendix C, Section I.

6.2 **Licensee** agrees to pay **PHS** a nonrefundable Annual Royalty as set forth in Appendix C, Section II.

6.3 **Licensee** agrees to pay **PHS** earned royalties as set forth in Appendix C, Section III.

6.4 **Licensee** agrees to pay **PHS** benchmark royalties ("Development Milestone Payments") as set forth in Appendix C, Section IV.

6.5 In addition to any earned royalties due to **PHS** on behalf of **Sublicensees** as provided for in Paragraph 6.3 of this **Agreement**, **Licensee** agrees to pay to **PHS** an additional royalty as a milestone payment tied to the sublicensing of the **Licensed Patent Rights** ("Sublicensing Milestone Payment"). The specific terms and conditions associated with this Sublicensing Milestone Payment are set forth in Appendix C, Section V.

6.6 In addition to any royalty payments described in Paragraphs 6.1 through 6.5 of this **Agreement**, in the event that **Licensee** assigns this **Agreement** to any third party other than a **Sublicensee**, **Licensee** shall pay **PHS**, as an additional royalty, the "Assignment Consideration" as set forth in Appendix C, Section VI.

6.7 With regard to expenses incurred by **PHS** and associated with the preparation, filing, prosecution, and maintenance of all patent applications and patents included within the **Licensed Patent Rights**, **Licensee** shall reimburse **PHS**, as an additional royalty, in the manner set forth in Appendix C, Section VII.

6.8 A patent or patent application licensed under this **Agreement** shall cease to fall within the **Licensed Patent Rights** for the purpose of computing earned royalty payments in any given country on the earliest of the dates that:

(a) the application has been abandoned and not continued;

(b) the patent expires or irrevocably lapses; or

(c) all of the claims have been held to be invalid or unenforceable by an unappealed or unappealable decision of a court of competent jurisdiction or administrative agency.

6.9 When calculating **Net Sales** for purposes of determining the Earned Royalty due pursuant to Paragraph 6.3, no multiple royalties shall be payable because any **Licensed Products** or **Licensed Processes** are covered by more than one of the **Licensed Patent Rights**.

6.10 On sales of **Licensed Products** by **Licensee** to **Sublicensees** or on sales made in other than an arms-length transaction, the value of the **Net Sales** attributed under this Article 6 to this transaction shall be that which would have been received in an arms-length transaction, based on sales of like quantity and quality products on or about the time of this transaction

6.11 Under exceptional circumstances, for example if **Licensee** comes to be the only party with rights under and of the particular **Licensed Patent Rights**, **Licensee** may be given the right to assume responsibility for the preparation, filing, prosecution, or maintenance of any patent application or patent included with the **Licensed Patent Rights**. In that event, **Licensee** shall directly pay the attorneys or agents engaged to prepare, file, prosecute, or maintain these patent applications or patents and shall provide **PHS** with copies of each invoice associated with these services as well as documentation that these invoices have been paid.

6.12 **PHS** agrees, upon written request, to provide **Licensee** with summaries of patent prosecution invoices for which **PHS** has requested payment from the **Licensee** under Paragraph 6.7.

6.13 **Licensee** may elect to surrender its rights in any country of the **Licensed Territory** under any of the **Licensed Patent Rights** upon sixty (60) days written notice to **PHS** and owe no payment obligation under Paragraph 6.7 for patent-related expenses incurred in that country after the effective date of the written notice.

7. PATENT FILING, PROSECUTION, AND MAINTENANCE

7.1 Except in exceptional circumstances, as provided for in Paragraph 6.11 above, **PHS** agrees to take responsibility for the preparation, filing, prosecution, and maintenance of any and all patent applications or patents included in the **Licensed Patent Rights**. **PHS** agrees to keep **Licensee** fully informed as to the status of the preparation, filing, prosecution, and maintenance of all patent applications and patents included in the **Licensed Patent Rights. PHS** will take any comments received from **Licensee** with respect to the preparation, filing, prosecution, and maintenance of all patent applications and patents included in the **Licensed Patent Rights** into good faith consideration. In the event that **PHS** decides to abandon the preparation, filing, prosecution, and maintenance of any of the patent applications and patents included in the **Licensed Patent Rights**, it will provide notice of such decision to **Licensee** and will allow **Licensee** to assume responsibility for such activities in any such **Licensed Patent Rights** to **Licensee.**

8. RECORD KEEPING

8.1 **Licensee** agrees to keep accurate and correct records of **Licensed Products** made, used, sold, or imported and **Licensed Processes** practiced under this **Agreement** appropriate to determine the amount of royalties due **PHS**. These records shall be retained for at least [**] years following a given reporting period and shall be available during normal business hours for inspection, at the expense of **PHS**, by an

independent accountant or other designated auditor selected by **PHS** for the sole purpose of verifying reports and royalty payments hereunder. The accountant or auditor shall only disclose to **PHS** information relating to the accuracy of reports and royalty payments made under this **Agreement**. If an inspection shows an underreporting or underpayment in excess of five percent (5%) for any twelve (12) month period, then **Licensee** shall reimburse **PHS** for the cost of the inspection at the time **Licensee** pays the unreported royalties, including any additional royalties as required by Paragraph 9.8. All royalty payments required under this Paragraph shall be due within [**] days of the date **PHS** provides **Licensee** notice of the payment due.

9. REPORTS ON PROGRESS, BENCHMARKS, SALES, AND PAYMENTS

9.1 Prior to signing this **Agreement**, **Licensee** has provided **PHS** with the **Commercial Development Plan** referred to in more detail in Appendix E, and under which **Licensee** intends to bring the subject matter of the **Licensed Patent Rights** to the point of **Practical Application**. This **Commercial Development Plan** is hereby incorporated by reference into this **Agreement**. Based on this plan, performance **Benchmarks** are determined as specified in Appendix D.

9.2 **Licensee** shall provide written reports on its product development progress or efforts to commercialize under the **Commercial Development Plan** for each of the **Licensed Fields of Use**. These written reports are due within [**] days after [**] of each calendar year beginning on [**]. The first written report will detail the progress made from the Effective Date of this **Agreement** through [**]. These progress reports shall include, but not be limited to: progress on research and development, status of applications for regulatory approvals, manufacturing, marketing, importing, and sales during the preceding calendar year, as well as, plans for the present calendar year. **PHS** also encourages these reports to include information on any of **Licensee's** public service activities that relate to the **Licensed Patent Rights**. If reported progress differs from that projected in the **Commercial Development Plan** and **Benchmarks**, **Licensee** shall explain the reasons for such differences. In any annual report, **Licensee** may propose amendments to the **Commercial Development Plan**, acceptance of which by **PHS** may not be denied unreasonably. **Licensee** agrees to provide any additional information reasonably required by **PHS** to evaluate **Licensee's** performance under this **Agreement**. **Licensee** may amend the **Benchmarks** at any time upon written approval by **PHS**. **PHS** shall not unreasonably withhold approval of any request of **Licensee** to extend the time periods of this schedule if the request is supported by a reasonable showing by **Licensee** of diligence in its performance under the **Commercial Development Plan** and toward bringing the **Licensed Products** to the point of **Practical Application**.

9.3 **Licensee** shall report to **PHS** the dates for achieving **Benchmarks** specified in Appendix D and the **First Commercial Sale** in each country in the **Licensed Territory** within [**] days of such occurrences.

9.4 Commencing with **First Commercial Sale**, **Licensee** shall submit to **PHS**, within [**] days after each [**] ending [**], a royalty report, as described in the example in Appendix F, setting forth for the preceding [**] period the amount of the **Licensed Products** sold or **Licensed Processes** practiced by or on behalf of **Licensee** in each country within the **Licensed Territory**, the **Net Sales**, and the amount of royalty accordingly due. With each royalty report, **Licensee** shall submit payment of earned royalties due. If no earned royalties are due to **PHS** for any reporting period, the written report shall so state. The royalty report shall be certified as correct by an authorized officer of **Licensee** and shall include a detailed listing of all deductions made under Paragraph 2.10 to determine **Net Sales** made under Article 6 to determine royalties due.

9.5 **Licensee** agrees to forward to **PHS**, on a [**] basis, a copy of reports received by **Licensee** from its sublicensees during the preceding [**] period as shall be pertinent to a royalty accounting to **PHS** by **Licensee** for activities under the sublicense.

9.6 Royalties due under Article 6 shall be paid in U.S. dollars and payment options are listed in Appendix G. For conversion of foreign currency to U.S. dollars, the conversion rate shall be the New York foreign exchange rate quoted in *The Wall Street Journal* on the day that the payment is due, and any loss of exchange, value, taxes, or other expenses incurred in the transfer or conversion to U.S. dollars shall be paid entirely by **Licensee**. The royalty report required by Paragraph 9.4 shall be mailed to **PHS** at its address for Agreement Notices indicated on the Signature Page.

9.7 **Licensee** shall be solely responsible for determining if any tax on royalty income is owed outside the United States and shall pay this tax and be responsible for all filings with appropriate agencies of foreign governments.

9.8 Additional royalties may be assessed by **PHS** on any payment that is more than [**] days overdue at the rate of [**] percent ([**]%) per month. This [**] percent ([**]%) per month rate may be applied retroactively from the original due date until the date of receipt by **PHS** of the overdue payment and additional royalties. The payment of any additional royalties shall not prevent **PHS** from exercising any other rights it may have as a consequence of the lateness of any payment.

9.9 All plans and reports required by this Article 9 and marked "confidential" by **Licensee** shall, to the extent permitted by law, be treated by **PHS** as commercial and financial information obtained from a person and as privileged and confidential, and any proposed disclosure of these records by the **PHS** under the Freedom of Information Act (FOIA), 5 U.S.C. §552 shall be subject to the predisclosure notification requirements of 45 CFR §5.65(d).

10. PERFORMANCE

10.1 **Licensee** shall use its reasonable commercial efforts to bring the **Licensed Products** and **Licensed Processes** to **Practical Application**. "Reasonable commercial efforts" for the purposes of this provision shall include adherence to the **Commercial Development Plan** in Appendix E and performance of the **Benchmarks** in Appendix D as may be amended from time to time in accordance with the provisions of Paragraphs 9.2 and 14.4. The efforts of the **Sublicensee** will be considered the efforts of the **Licensee**.

10.2 Upon the **First Commercial Sale**, until the expiration or termination of this **Agreement**, **Licensee** shall use its reasonable commercial efforts to make **Licensed Products** and **Licensed Processes** reasonably accessible to the United States public.

10.3 **Licensee** agrees, after its **First Commercial Sale,** to make reasonable quantities of **Licensed Products** or materials produced through the use of **Licensed Processes** available on a compassionate use basis to patients, either through the patient's physician(s) or the medical center treating the patient.

10.4 **Licensee** agrees, after its **First Commercial Sale** and as part of its marketing and product promotion, to develop educational materials (e.g., brochures, website, etc.) directed to patients and physicians detailing the **Licensed Products** or medical aspects of the prophylactic and therapeutic uses of the **Licensed Products**.

10.5 **Licensee** agrees to supply, to the Mailing Address for Agreement Notices indicated on the Signature Page, the Office of Technology Transfer, **NIH** with inert samples of the **Licensed Products** or **Licensed Processes** or their packaging for educational and display purposes only.

11. INFRINGEMENT AND PATENT ENFORCEMENT

11.1 **PHS** and **Licensee** agree to notify each other promptly of each infringement or possible infringement of the **Licensed Patent Rights**, as well as, any facts which may affect the validity, scope, or enforceability of the **Licensed Patent Rights** of which either Party becomes aware.

11.2 In the event that a declaratory judgment action alleging invalidity of any of the **Licensed Patent Rights** shall be brought against **PHS**, **PHS** agrees to notify **Licensee** that an action alleging invalidity has been brought. **PHS** does not represent that it shall commence legal action to defend against a declaratory action alleging invalidity. **Licensee** shall take no action to compel the **Government** either to initiate or to join in any declaratory judgment action. Should the **Government** be made a party to any suit by motion or any other action of **Licensee**, **Licensee** shall reimburse the **Government** for any costs, expenses, or fees, which the **Government** incurs as a result of the motion or other action. Upon **Licensee's** payment of all costs incurred by the **Government** as a result of **Licensee's** joinder motion or other action, these actions by **Licensee** shall not be considered a default in the performance of any material obligation under this **Agreement**.

12. NEGATION OF WARRANTIES AND INDEMNIFICATION

12.1 **PHS** offers no warranties other than those specified in Article 1.

12.2 **PHS** does not warrant the validity of the **Licensed Patent Rights** and makes no representations whatsoever with regard to the scope of the **Licensed Patent Rights**, or that the **Licensed Patent Rights** may be exploited without infringing other patents or other intellectual property rights of third parties.

12.3 **PHS** MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF ANY SUBJECT MATTER DEFINED BY THE CLAIMS OF THE **LICENSED PATENT RIGHTS** OR TANGIBLE MATERIALS RELATED THERETO.

12.4 **PHS** does not represent that it shall commence legal actions against third parties infringing the **Licensed Patent Rights**.

12.5 **Licensee** shall indemnify and hold **PHS**, its employees, students, fellows, agents, and consultants harmless from and against all liability, demands, damages, expenses, and losses, including but not limited to death, personal injury, illness, or property damage in connection with or arising out of:

(a) the use by or on behalf of **Licensee**, its directors, employees, its **Sublicensees**, or third parties of any **Licensed Patent Rights**; or

(b) the design, manufacture, distribution, or use of any **Licensed Products**, **Licensed Processes** or materials by **Licensee** or its **Sublicensees**, or other products or processes developed in connection with or arising out of the **Licensed Patent Rights**.

12.6 **Licensee** agrees to maintain a liability insurance program consistent with sound business practice.

13. TERM, TERMINATION, AND MODIFICATION OF RIGHTS

13.1 This **Agreement** is effective when signed by all parties "Effective Date", unless the provisions of Paragraph 14.15 are not fulfilled, and shall extend to the expiration of the last to expire of the **Licensed Patent Rights** unless sooner terminated as provided in this Article 13.

13.2 In the event that **Licensee** is in default in the performance of any material obligations under this **Agreement**, including but not limited to the obligations listed in Paragraph 13.5, and if the default has not been remedied within [**] days after the date of notice in writing of the default, **PHS** may terminate this **Agreement** by written notice and pursue outstanding royalties owed through procedures provided by the Federal Debt Collection Act.

13.3 In the event that **Licensee** becomes insolvent, files a petition in bankruptcy, has such a petition filed against it, determines to file a petition in bankruptcy, or receives notice of a third party's intention to file an involuntary petition in bankruptcy, **Licensee** shall immediately notify **PHS** in writing. Furthermore, **PHS** shall have the right to terminate this **Agreement** immediately upon **Licensee's** receipt of written notice.

13.4 **Licensee** shall have a unilateral right to terminate this **Agreement** in any country or territory by giving **PHS** sixty (60) days written notice to that effect.

13.5 **PHS** shall specifically have the right to terminate or modify, at its option, this **Agreement**, if **PHS** determines that the **Licensee**:

(a) is not executing the **Commercial Development Plan,** as may be amended from time to time in accordance with the provisions of Paragraphs 9.2 and 14.4, submitted with its request for a license and the **Licensee** cannot otherwise demonstrate to **PHS'** satisfaction that the **Licensee** has taken, or can be expected to take within a reasonable time, effective steps to achieve **Practical Application** of the **Licensed Products** or **Licensed Processes**;

(b) has not achieved the **Benchmarks,** as may be amended from time to time in accordance with the provisions of Paragraphs 9.2 and 14.4, as may be modified under Paragraph 9.2;

(c) has willfully made a false statement of, or willfully omitted, a material fact in the license application or in any report required by this **Agreement**;

(d) has committed a material breach of a covenant or agreement contained in this **Agreement**;

(e) is not keeping **Licensed Products** or **Licensed Processes** reasonably available to the public after commercial use commences;

(f) cannot reasonably satisfy unmet health and safety needs; or

(g) cannot reasonably justify a failure to comply with the domestic production requirement of Paragraph 5.2, unless waived.

13.6 In making the determination referenced in Paragraph 13.5, **PHS** shall take into account the normal course of such commercial development programs conducted with sound and reasonable business practices and judgment and the annual reports submitted by **Licensee** under Paragraph 9.2. Prior to invoking termination or modification of this **Agreement** under Paragraph 13.5, **PHS** shall give written notice to **Licensee** providing **Licensee** specific notice of, and a [**] day opportunity to respond to, **PHS'** concerns as to the items referenced in 13.5(a)-13.5(g). If **Licensee** fails to alleviate **PHS'** concerns as to the items referenced in 13.5(a)-13.5(g) or fails to initiate corrective action to **PHS'** satisfaction, **PHS** may terminate this **Agreement**.

13.7 **PHS** reserves the right according to 35 U.S.C. §209(d)(3) to terminate or modify this **Agreement** if it is determined that the action is necessary to meet the requirements for public use specified by federal regulations issued after the date of the license and these requirements are not reasonably satisfied by **Licensee**.

13.8 Within [**] days of receipt of written notice of **PHS'** unilateral decision to modify or terminate this **Agreement**, **Licensee** may, consistent with the provisions of 37 CFR §404.11, appeal the decision by written submission to the designated **PHS** official. The decision of the designated **PHS** official shall be the final agency decision. **Licensee** may thereafter exercise any and all administrative or judicial remedies that may be available.

13.9 Within [**] days of expiration or termination of this **Agreement** under this Article 13, a final report shall be submitted by **Licensee**. Any royalty payments, including those incurred but not yet paid (such as the full minimum annual royalty), and those related to patent expense, due to **PHS** shall become immediately due and payable upon termination or expiration. If terminated under this Article 13, **Sublicensees** may elect to convert their sublicenses to direct licenses with **PHS** pursuant to Paragraph 4.3. Unless otherwise specifically provided for under this **Agreement**, upon termination or expiration of this **Agreement**, **Licensee** shall return all **Licensed Products** or other materials included within the **Licensed Patent Rights** to **PHS** or provide **PHS** with written certification of the destruction thereof.

14. GENERAL PROVISIONS

14.1 Neither party may waive or release any of its rights or interests in this **Agreement** except in writing. The failure of the **Government** to assert a right hereunder or to insist upon compliance with any term or condition of this **Agreement** shall not constitute a waiver of that right by the **Government** or excuse a similar subsequent failure to perform any of these terms or conditions by **Licensee**.

14.2 This **Agreement** constitutes the entire agreement between the Parties relating to the subject matter of the **Licensed Patent Rights**, **Licensed Products** and **Licensed Processes**, and all prior negotiations, representations, agreements, and understandings are merged into, extinguished by, and completely expressed by this **Agreement**.

14.3 The provisions of this **Agreement** are severable, and in the event that any provision of this **Agreement** shall be determined to be invalid or unenforceable under any controlling body of law, this determination shall not in any way affect the validity or enforceability of the remaining provisions of this **Agreement**.

14.4 If either party desires a modification to this **Agreement**, the parties shall, upon reasonable notice of the proposed modification by the party desiring the change, confer in good faith to determine the desirability of the modification. No modification shall be effective until a written amendment is signed by the signatories to this **Agreement** or their designees.

14.5 The construction, validity, performance, and effect of this **Agreement** shall be governed by Federal law as applied by the Federal courts in the District of Columbia.

14.6 All Agreement Notices required or permitted by this **Agreement** shall be given by prepaid, first class, registered or certified mail or by an express/overnight delivery service provided by a commercial carrier, properly addressed to the other party at the address designated on the Signature Page, or to any other address as may be designated in writing by such other party. Agreement Notices shall be considered timely if such notices are received on or before the established deadline date or sent on or before the deadline date as verifiable by U.S. Postal

Service postmark or dated receipt from a commercial carrier. Parties should request a legibly dated U.S. Postal Service postmark or obtain a dated receipt from a commercial carrier or the U.S. Postal Service. Private metered postmarks shall not be acceptable as proof of timely mailing.

14.7 This **Agreement** shall not be assigned by **Licensee** except:

(a) with the prior written consent of **PHS**, this consent shall not to be withheld unreasonably; or

(b) as part of a sale or transfer of substantially the entire business of **Licensee** relating to operations which concern this **Agreement**; and

(c) **Licensee** shall notify **PHS** within [**] days of any assignment of this **Agreement** by **Licensee**.

14.8 **Licensee** agrees in its use of any **PHS**-supplied materials to comply with all applicable statutes, regulations, and guidelines, including **PHS** and **HHS** regulations and guidelines. **Licensee** agrees not to use the materials for research involving human subjects or clinical trials in the United States without complying with 21 CFR Part 50 and 45 CFR Part 46. **Licensee** agrees not to use the materials for research involving human subjects or clinical trials outside of the United States without notifying **PHS**, in writing, of the research or trials and complying with the applicable regulations of the appropriate national control authorities. Written notification to **PHS** of research involving human subjects or clinical trials outside of the United States shall be given no later than [**] days prior to commencement of the research or trials.

14.9 **Licensee** acknowledges that it is subject to and agrees to abide by the United States laws and regulations (including the Export Administration Act of 1979 and Arms Export Control Act) controlling the export of technical data, computer software, laboratory prototypes, biological materials, and other commodities. The transfer of these items may require a license from the appropriate agency of the **Government** or written assurances by **Licensee** that it shall not export these items to certain foreign countries without prior approval of the agency. **PHS** neither represents that a license is or is not required or that, if required, it shall be issued.

14.10 **Licensee** agrees to mark the **Licensed Products** or their packaging sold in the United States with all applicable U.S. patent numbers and similarly to indicate "Patent Pending" status. All **Licensed Products** manufactured in, shipped to, or sold in other countries shall be marked in a manner to preserve **PHS** patent rights in those countries.

14.11 By entering into this **Agreement**, **PHS** does not directly or indirectly endorse any product or service provided, or to be provided, by **Licensee** whether directly or indirectly related to this **Agreement**. **Licensee** shall not state or imply that this **Agreement** is an endorsement by the **Government**, **PHS**, any other **Government** organizational unit, or any **Government** employee. Additionally, **Licensee** shall not use the names of **NIH**, **PHS**, **FDA** or **HHS** or the **Government** or their employees in any advertising, promotional, or sales literature without the prior written approval of **PHS**.

14.12 The Parties agree to attempt to settle amicably any controversy or claim arising under this **Agreement** or a breach of this **Agreement**, except for appeals of modifications or termination decisions provided for in Article 13. **Licensee** agrees first to appeal any unsettled claims or controversies to the designated **PHS** official, or designee, whose decision shall be considered the final agency decision. Thereafter, **Licensee** may exercise any administrative or judicial remedies that may be available.

14.13 Nothing relating to the grant of a license, nor the grant itself, shall be construed to confer upon any person any immunity from or defenses under the antitrust laws or from a charge of patent misuse, and the acquisition and use of rights pursuant to 37 CFR Part 404 shall not be immunized from the operation of state or Federal law by reason of the source of the grant.

14.14 Paragraphs 4.3, 6.4, 8.1, 9.5-9.9, 12.1-12.5, 13.8, 13.9, 14.12 and 14.14 of this **Agreement** shall survive termination of this **Agreement**.

14.15 The terms and conditions of this **Agreement** shall, at **PHS'** sole option, be considered by **PHS** to be withdrawn from **Licensee's** consideration and the terms and conditions of this **Agreement**, and the **Agreement** itself to be null and void, unless this **Agreement** is executed by the **Licensee** and a fully executed original is received by **PHS** within sixty (60) days from the date of **PHS** signature found at the Signature Page.

SIGNATURES BEGIN ON NEXT PAGE

PHS PATENT LICENSE AGREEMENT — *NONEXCLUSIVE*

SIGNATURE PAGE

For **PHS**:

/s/ Steven M. Ferguson	2/8/08
Steven M. Ferguson	Date
Director, Division of Technology Development and Transfer	

Office of Technology Transfer
National Institutes of Health

Mailing Address for **Agreement** notices:

Chief, Monitoring & Enforcement Branch
Office of Technology Transfer
National Institutes of Health
6011 Executive Boulevard, Suite 325
Rockville, Maryland 20852-3804 U.S.A.

For **Licensee** (Upon, information and belief, the undersigned expressly certifies or affirms that the contents of any statements of **Licensee** made or referred to in this document are truthful and accurate.):

by:

/s/ Edward J. Stewart	2/20/08
Signature of Authorized Official	Date
Edward J. Stewart	Lisa A. Evren
Printed Name	
Vice President, Business Development	2/20/08 SVP and CFO
Title	

I. Official and Mailing Address for **Agreement** notices:

Edward J. Stewart

Vice President, Business Development

Merrimack Pharmaceuticals

One Kendall Square

Building 700; 2nd Floor

Cambridge, MA 02139

II. Official and Mailing Address for Financial notices (**Licensee's** contact person for royalty payments)

Edward J. Stewart
Name

Vice President, Business Development
Title

Mailing Address:

Merrimack Pharmaceuticals

One Kendall Square

Building 700; 2nd Floor

Cambridge, MA 02139

Email Address: tstewart@merrimackpharma.com

Phone: 617.441.1000

Fax: 617.491.1386

Any false or misleading statements made, presented, or submitted to the **Government**, including any relevant omissions, under this **Agreement** and during the course of negotiation of this **Agreement** are subject to all applicable civil and criminal statutes including Federal statutes 31 U.S.C. §§3801-3812 (civil liability) and 18 U.S.C. §1001 (criminal liability including fine(s) and/or imprisonment).

APPENDIX A — PATENT(S) OR PATENT APPLICATION(S)

Patent(s) or Patent Application(s):

I. U.S. Patents and Patent Applications

[**]

II. PCT Application and Foreign Patents and Patent Applications

[**]

APPENDIX B — LICENSED FIELDS OF USE AND TERRITORY

I. **Licensed Fields of Use**:

As provided for in Paragraph 2.5 the **Licensed Fields of Use** are set forth below:

(a) Therapeutics:

Research, development and commercialization of **Licensed Products** or **Licensed Processes** for the treatment of erbB-3 [**] using the **Licensed Patent Rights**.

(b) Diagnostics;

Research, development and commercialization of diagnostic products for the [**] related to the [**] erbB-3 [**] erbB-3 [**] using the **Licensed Patent Rights**. For purposes of this **Agreement** Diagnostics includes [**] as well as [**] with the **Licensed Products** or **Licensed Processes**.

(c) Internal Research:

Research and development efforts which require the **Licensed Patent Rights** including drug [**] where the **Licensed Products** and **Licensed Processes** would not be within the **Licensed Fields of Use** set forth in Paragraphs (a) and (b) above.

II. **Licensed Territory**:

(a) As provided for in Paragraph 2.10 the **Licensed Territory** is worldwide.

APPENDIX C — ROYALTIES

Royalties:

I. EXECUTION FEE

As provided for in Paragraph 6.1 of this **Agreement**, **Licensee** agrees to pay to **PHS** a noncreditable, nonrefundable Execution Fee, in the amount of [**] Dollars ($[**]). The Execution Fee accrues as of the Effective Date of the **Agreement** and is payable to **PHS** in two installments as follows:

(a) A first installment in the amount of [**] Dollars ($[**]) is payable within [**] days from the Effective Date of this **Agreement**; and

(b) A second installment in the amount of [**] Dollars ($[**]) is payable to **PHS** on the [**] anniversary of the Effective Date of this **Agreement**.

II. ANNUAL ROYALTY

As provided for in Paragraph 6.2 of this **Agreement**, **Licensee** agrees to pay to **PHS** a nonrefundable Annual Royalty, The Annual Royalty is apportioned as follows:

(a) For the period up to and including the year of **[**]** the amount of the Annual Royalty due and payable to **PHS** is [**] Dollars ($[**]). The first Annual Royalty payment, will be due [**] and is payable to **PHS** within [**] days thereof. For each subsequent year of the **Agreement** the Annual Royalty is due on [**] and is payable to **PHS** within [**] days thereof. The Annual Royalty payments for the time period up to **[**]** are [**] against any other royalty payments as set forth in Paragraphs 6.1through 6.6 of this **Agreement**.; and

(b) Beginning with the [**] following **[**]** and on each subsequent [**] thereafter until the expiration or termination of this **Agreement**, the Annual Royalty will be considered a minimum annual royalty payment ("MAR"). The MAR will be in the amount of [**] Dollars ($[**]). The MAR is creditable only against [**]payments as provided for by Paragraph 6.3 and will only be creditable against [**]payments due for that [**] (e.g. The MAR is paid [**] it will be creditable against earned royalties for the calendar year [**] only). The MAR will be due on [**] of each calendar year and is payable to **PHS** within [**] days thereof.

III. EARNED ROYALTY PAYMENTS

As provided for in Paragraph 6.3 of this **Agreement** and subject to the **Most Favored Licensee** definition of Paragraph 2.11, **Licensee** agrees to pay **PHS** earned royalties as set forth below:

(a) For sales within the **Licensed Field of Use** set forth in Appendix B, Section I, Paragraph (a) (Therapeutics), **Licensee** agrees to pay to **PHS**, a nonrefundable earned royalty on **Net Sales** in an amount equal to [**] percent ([**]%) divided by the [**] of the value of **Net Sales** by or on behalf of **Licensee** or its **Sublicensees**. The earned royalty as set forth herein is to be paid in accordance with the reporting provisions of Paragraph 9.4 of this **Agreement** and calculated in accordance with the conditions set forth in Paragraph 9.5 of this **Agreement**. Notwithstanding the forgoing the total number of **Licensed Products** which may be used to reduce the royalty rate from the initial rate of [**] percent ([**]%) is [**].

(b) For sales within the **Licensed Field of Use** set forth in Appendix B, Section I, Paragraph (b) (Diagnostics), **Licensee** agrees to pay to **PHS**, a nonrefundable earned royalty on **Net Sales** in an amount equal to [**] percent ([**]%) divided by the [**] of the value of **Net Sales** by or on behalf of **Licensee** or its **Sublicensees**. The earned royalty as set forth herein is to be paid in accordance with the reporting provisions of Paragraph 9.4 of this **Agreement** and calculated in accordance with the conditions set forth in Paragraph 9.5 of this **Agreement**. Notwithstanding the forgoing the total number of **Licensed Products** which may be used to reduce the royalty rate from the initial rate of [**] percent ([**]%) is [**].

IV. DEVELOPMENTAL MILESTONE PAYMENTS

As provided for in Paragraph 6.4 of this **Agreement** and subject to the **Most Favored Licensee** definition of Paragraph 2.11, **Licensee** agrees to pay **PHS** a nonrefundable developmental milestone payments associated with specific **Licensed Fields of Use** as set forth below:

(a) For the development of Therapeutics (Appendix B(I)(a))

(1) A Validation Milestone Payment, as additional consideration indicative of the value of the **Licensed Patent Rights**, in the amount of [**] Dollars ($[**]). The Validation Milestone Payment is due upon each occurrence of the [**], and where [**] (a) is for a **Licensed Product** or (b) for a product produced by a **Licensed Process**, or (c) contains descriptions of materials or methods within the scope of the **Licensed Patent Rights**. Notwithstanding the foregoing, the total amount of any benchmark payments under this Paragraph (a)(1) shall not exceed [**] Dollars ($[**]). Each payment is due upon achieving the milestone and is payable within [**] days thereof. The obligation to pay the Validation Milestone Payment survives any termination or expiration of this **Agreement**.

(2) A Clinical Milestone Payment upon achieving the first [**] in the amount of [**] Dollars ($[**]). The Clinical Milestone Payment is due upon achieving the milestone and is payable to **PHS** within [**] days thereof. The obligation to pay the Clinical Milestone Payment survives any termination or expiration of this **Agreement**

(3) A Regulatory Approval Milestone Payment, upon achieving the first occurrence of, [**], for example [**], for a **Licensed Product**, a **Licensed Process**, or a product made by a **Licensed Process** or from a **Licensed Product**, from the [**], in the amount of [**] Dollars ($[**]). The Regulatory Approval Milestone Payment is due upon achieving the milestone and is payable to **PHS** within [**] days thereof. The obligation to pay the Regulatory Milestone Payment survives any termination or expiration of this **Agreement**.

(b) For the development of Diagnostics (Appendix B(I)(b))

(1) A Regulatory Milestone Payment, in the amount of [**] Dollars ($[**]), upon the first occurrence of the [**], where such [**] is for a diagnostic and/or prognostic product that [**]. For purposes of this Paragraph activity includes but is not limited to [**]. This milestone payment is due upon achieving the milestone and is payable to **PHS** within [**] days thereof. The obligation to pay the Regulatory Milestone Payment survives any termination or expiration of this **Agreement**.

Upon the Effective Date of this **Agreement** the obligation to pay the Milestone Payments set forth in Appendix C, Section C of the prior license between **PHS** and **Licensee** having **PHS** reference number [**] and effective August 30, 2005 is extinguished and replaced by the obligation to make certain milestone payments as set forth in this, Section IV, Paragraphs (a)(1) and (b)(1).

V. SUBLICENSING MILESTONE

As provided for by Paragraph 6.5, **Licensee** agrees to pay **PHS**, upon sublicensing any or all of the **Licensed Patent Rights** to a third party, an additional Milestone Payment in the amount of [**] Percent ([**]%) of the value of the [**] consideration due to **Licensee** as of the effective date of the sublicense excluding those amounts (a) received by **Licensee** as [**] of this **Agreement** and (b) those amounts received by **Licensee** as [**] for the **Licensed Products** and **Licensed Processes** [**] by **Licensee** after the Effective Date of the prior license, [**] effective August 30, 2005 by and between **PHS** and **Licensee**. The Sublicensing Milestone Payment accrues as of the effective date of the sublicense and is payable to **PHS** within [**] days thereof. Notwithstanding the foregoing, in the event the sublicense is one granted to a **Collaborator**, **Licensee** shall owe no sublicensing royalty under Paragraph 6.5.

VI. ASSIGNMENT CONSIDERATION

As provided for by Paragraph 6.6, and subject to the **Most Favored Licensee** definition of Paragraph 2.11 **Licensee** agrees to pay **PHS**, as consideration for receiving **PHS** consent to the assignment of the **Agreement** as required by Paragraph 14.7, a royalty in the amount of:

(a) [**] Dollars ($[**]), in the event that the assignment of the **Agreement** is required because **Licensee** is selling substantially all of their assets as part of a merger or acquisition. In addition to the aforementioned **Assignment Consideration** outlined within this paragraph, the **Assigned Licensee** shall provide to **PHS** an updated **Development Plan** and **Benchmarks** within [**] days of the Assignment ; or

(b) [**] Percent ([**]%) of the value of the cash consideration due to the **Licensee** as of the effective date of the assignment, excluding (1) [**] of this **Agreement** and (2) those [**] by and between **PHS** and **Licensee**, in the event that the assignment of this **Agreement** is required because **Licensee** is selling only the assets associated with the commercialization of a product requiring access to this **Agreement**. In addition to the aforementioned **Assignment Consideration** outlined within this paragraph, the **Assigned Licensee** shall provide to **PHS** an updated **Development Plan** and **Benchmarks** within [**] days of the Assignment

VII. REIMBURSEMENT OF PATENT PROSECUTION COSTS

As provided for in Paragraph 6.7 of this **Agreement**, **Licensee** agrees to pay to **PHS**, as an additional, nonrefundable royalty representing reimbursement to **PHS** for the expenses incurred by or on behalf of **PHS** in the prosecution and maintenance of the **Licensed Patent Rights**. Unless specifically provided for this royalty is not creditable against any other payment obligations set forth in this **Agreement**. The specific terms and conditions associated with the reimbursement of **PHS'** patent expenses are as follows:

(a) For patent expenses incurred through [**] and not previously reimbursed to **PHS** by a third party(prior patent expenses), **Licensee** agrees to pay **PHS** [**]. This amount is equal to [**] percent ([**]%) of the expenses incurred by **PHS** through [**] (CY [**]) for each issued patent and PCT application as set forth in Appendix A. This payment is due as of the Effective Date of the **Agreement** and is payable to **PHS** within [**] days thereof.

(b) For patent expenses incurred beginning [**] and not previously reimbursed to **PHS** by a third party (Future Patent Expenses), **Licensee** agrees to reimburse **PHS** as follows:

(1) For any pending application within the **Licensed Patent Rights**, with the exception of one that is involved in any administrative proceeding as noted in Paragraphs (b)(3) and (b)(4) below, as long as the application is pending and no patent has issued, **Licensee** shall not be responsible for reimbursing **PHS'** Future Patent Expenses. At the time of issuance of a patent for any pending application within the **Licensed Patent Rights**, **Licensee** shall pay to **PHS** an amount equal to (a) [**] Percent ([**]%) or (b) a **[**]**, whichever is less, of the expenses incurred by **PHS**, until issuance of the patent. After issuance of the patent Future Patent Expenses are subject to the provisions of Paragraph (b)(2).

(2) For each issued patent within the **Licensed Patent Rights**, with the exception of a patent that is involved in any administrative proceeding as noted in Paragraphs (b)(3) and (b)(4) below, **Licensee**, shall pay to **PHS**, an amount equal to [**] Percent ([**]%), or a **[**]**

(3) In the event of an interference, reexamination, reissue, opposition proceeding or other administrative proceeding of similar nature conducted before a National Patent Office and initiated by **Licensee** or at **Licensee's** request, by **PHS** on behalf of **Licensee**, **Licensee** will pay to **PHS** an amount equal to [**] Percent ([**]%) of **PHS'** Future Patent Prosecution Expenses related to the administrative proceedings; and

(4) In the event of an interference, reexamination, reissue, opposition proceeding or other administrative procedure of a similar nature conducted before a National Patent Office initiated by a third party, **Licensee** will pay to **PHS** an amount equal to [**] Percent ([**]%) or a **[**]**, whichever is less, of **PHS'** Future patent Expenses related to the administrative proceedings.

For any Future Patent Expenses payment described in Paragraphs (b)(1) through (b)(4) above, the amount of the Future Patent Expenses is based on **PHS'** Future Patent Expenses incurred with respect to the **Licensed Patent Rights** for any given calendar year, and may be billed to **Licensee** on an annual basis, although the interval for billing such expenses may be greater. Any Future Patent Prosecution Expenses to be reimbursed by **Licensee** are due as of the date which **PHS** incurs such expenses but are not payable by **Licensee** until a period not to exceed [**] calendar days after **PHS'** request for reimbursement thereof.

With respect to any Future Patent Expenses due or paid to **PHS** under Paragraph (b)(3) above and in such cases where **Licensee** initiates the administrative proceeding or where **PHS** has initiated the administrative proceeding on behalf of **Licensee**, at the time of **First Commercial Sale, Licensee** will be entitled to a [**] as provided for in Paragraph 6.3 of this **Agreement**. The amount of the [**] available will be equal to the amount of [**] at the time of **Licensee's First Commercial Sale**. Notwithstanding the foregoing, any credit due in accordance with this Paragraph shall not reduce the amount of the earned royalty due for any given calendar year below the minimum annual royalty and may, if necessary, be carried forward until the amount of the credit is exhausted.

APPENDIX D — BENCHMARKS AND PERFORMANCE

Licensee will use commercially reasonable efforts to achieve the following **Benchmarks** for its performance under this **Agreement** and, within [**] days of achieving a **Benchmark**, shall notify **PHS** that the **Benchmark** has been achieved.

I. For the **Licensed Field of Use** set forth in Appendix B, Section I(a)

(a) Development of antibody therapy for cancers

Benchmark	Projected Time to Achieve Benchmark
[**]	[**]
[**]	[**]
[**]	[**]
[**]	[**]
[**]	[**]
[**]	[**]
[**]	[**]
[**]	[**]

(b) Development of second therapeutic

Benchmark	Expected Date
[**]	[**]
[**]	[**]
[**]	[**]
[**]	[**]

II. For the **Licensed Field of Use** as set forth in Appendix B, Section I(b)

Benchmark	Expected Date
[**]	[**]
[**]	[**]

APPENDIX E — COMMERCIAL DEVELOPMENT PLAN

In accordance with the provisions of 37 CFR Part 404 and Paragraph 9.1 of this **Agreement**, **Licensee** is providing a detailed **Commercial Development Plan** for the period January 1, 2007 through December 31, 2008. This detailed **Commercial Development Plan** will be updated on an annual basis by **Licensee** through the submission of the annual progress reports required by Paragraph 9.2 of this **Agreement**. In addition to this detailed **Commercial Development Plan**, for the next and following calendar years, **Licensee** has previously outlined their general plans for commercialization over the life of the license in the license application submitted November 2, 2006 and which has been given **NIH** Reference Number [**]. The **Licensee's** general plans for commercial development have been reduced to the specific **Benchmarks** as set forth in Appendix D.

I. Research and Development

[**]

II. Regulatory Activities

[**]

III. Manufacturing

[**]

IV. Sublicensing

[**]

V. Marketing, Importing and Sales

[**]

APPENDIX F — EXAMPLE ROYALTY REPORT

Required royalty report information includes:

- OTT license reference number (L-XXX-200X/0)
- Reporting period
- Catalog number and units sold of each Licensed Product (domestic and foreign)
- Gross Sales per catalog number per country
- Total Gross Sales
- Itemized deductions from Gross Sales

- Total Net Sales
- Earned Royalty Rate and associated calculations
- Gross Earned Royalty
- Adjustments for Minimum Annual Royalty (MAR) and other creditable payments made
- Net Earned Royalty due

Example

Catalog Number	Product Name	Country	Units Sold	Gross Sales (US$)
1	A	US	[**]	[**]
1	A	UK	[**]	[**]
1	A	France	[**]	[**]
2	B	US	[**]	[**]
3	C	US	[**]	[**]
4	D	US	[**]	[**]

Total Gross Sales	[**]
Less Deductions:	
Freight	[**]
Returns	[**]
Total Net Sales	[**]
Royalty Rate	[**]
Royalty Due	[**]
Less Creditable Payments	[**]
Net Royalty Due	**[**]**

APPENDIX G — ROYALTY PAYMENT OPTIONS

NIH/PHS License Agreements

****In order to process payment via Electronic Funds Transfer sender MUST supply the following information:***

Procedure for Transfer of Electronic Funds to NIH for Royalty Payments

Bank Name: [**]

ABA# [**]
TREAS NYC
BNF=/[**]
OBI=Licensee Name and OTT Reference Number
Dollar Amount Wired=$$

NOTE: Only U.S. banks can wire directly to the Federal Reserve Bank. Foreign banks cannot wire directly to the Federal Reserve Bank, but must go through an intermediary U.S. bank. Foreign banks may send the wire transfer to the U.S. bank of their choice, who, in turn forwards the wire transfer to the Federal Reserve Bank.

Checks drawn on a U.S. bank account should be sent to the following address:

National Institutes of Health (NIH)
P.O. Box 979071
St. Louis, MO 63197-9000 USA

Overnight or courier deliveries should be sent to the following address:

US Bank
Government Lockbox SL-MO-C2GL
1005 Convention Plaza
St. Louis, MO 63101
Phone: 314-418-4087

Checks drawn on a foreign bank account should be sent directly to the following address:

National Institutes of Health (NIH)
Office of Technology Transfer
Royalties Administration Unit
6011 Executive Boulevard
Suite 325, MSC 7660
Rockville, MD 20852
Phone: 301-496-7057

All checks should be made payable to: NIH/Patent Licensing

The OTT Reference Number MUST appear on checks, reports and correspondence

Confidential Materials omitted and filed separately with the Securities and Exchange Commission. Asterisks denote omissions.

LICENSE AGREEMENT

Between

Hermes Biosciences, Inc.

And

PharmaEngine, Inc.

Dated As of September 26, 2005

Table of Contents

LICENSE AGREEMENT

This agreement ("Agreement") is entered into as of this 26th day of September, 2005 by and between Hermes Biosciences, Inc., a corporation organized under the laws of California, United States of America with its principal place of business at 61 Airport Boulevard, Suite D, South San Francisco, CA 94080, United States of America (hereinafter referred to as "HERMES") and PharmaEngine, Inc., a corporation organized under the laws of the Republic of China with its principal place of business at 16F, 237, Sung-Chiang Road, Taipei, Taiwan 104, Republic of China (hereinafter referred to as "PHARMAENGINE"). The parties hereto may be referred to collectively as the "Parties" and individually as the "Party", as the case may be.

RECITALS

WHEREAS, HERMES is a biotechnology company engaged in developing drug delivery technologies for therapeutic and other biomedical applications, and has developed certain HERMES owned patents, patent applications and know-how relating to liposomal irinotecan;

WHEREAS, PHARMAENGINE is a biopharmaceutical company focusing on development and commercialization of novel drugs, and is interested in developing camptothecin derivatives based liposomal drugs;

WHEREAS, PHARMAENGINE is currently conducting phase 1 clinical trial for liposomal irinotecan which is based on the technologies that HERMES originally licensed to TTY Biopharm Company Ltd., a corporation organized under the laws of the Republic of China with its principal place of business at 4F, 170, Section 3, Min-Chuan East Road, Taipei, Taiwan 104, Republic of China (hereinafter referred to as "TTY") under the Research and Development Agreement between HERMES and TTY dated April 1, 2001, (the "TTY Research and Development Agreement") and TTY subsequently assigned all its licensed rights and obligations under the TTY Research and Development Agreement to PHARMAENGINE without conditions on June 10, 2003 with the consent of HERMES;

WHEREAS, PHARMAENGINE has paid NT$14,285,714 to TTY and US$50,000 to HERMES as the assignment fee for such assignment;

WHEREAS, based on the existing licensing relationship between PHARMAENGINE and HERMES under the TTY Research and Development Agreement in which HERMES grants the exclusive right to PHARMAENGINE in certain countries in the area of Asia, PHARMAENGINE now desires to further acquire the exclusive right in all countries in Europe to develop and commercialize the irinotecan based liposomal drug product(s);

WHEREAS, HERMES agrees to grant such rights to PHARMAENGINE, and both Parties desire to revise the terms of the existing TTY Research and Development Agreement and further expand their relationship to a licensing and co-development relationship regarding the liposomal irinotecan based drugs as set forth under this Agreement; and

WHEREAS, this Agreement is to replace and supersede the TTY Research and Development Agreement;

NOW THEREFORE, based in the foregoing premises and the mutual covenants and obligations set forth below, the Parties agree as follows:

ARTICLE 1 - DEFINITION

GENERAL. As used in this Agreement, unless context dictates otherwise, the following terms shall have the meanings set forth in this Article 1 and words denoting the singular shall include the plural and vice versa.

1.1 **"Adverse Event"** shall mean any unfavourable and unintended sign (including an abnormal laboratory finding), symptom or disease associated with the administration of a medicinal product whether or not considered related to the Licensed Product;

1.2 **"Affiliate"** shall mean in relation to either Party any person or entity who directly or indirectly controls, is controlled by or is under common control with that Party. A person or entity shall be regarded as in control of another person if it owns directly or indirectly more than 40% (forty percent) of the voting stock or other ownership or income interest of another person or entity or if it directly or indirectly possesses the power to direct or cause the direction of the management and policies of another person or entity by any means whatsoever;

1.3 **"Business Day"** shall mean a day other than a Saturday, Sunday, Bank Holiday or other public or national holiday in the Territory or Retained Territory;

1.4 **"CMC"** shall mean chemistry, manufacture and controls;

1.5 **"Commercial Launch"** shall mean the first shipment by PHARMAENGINE, its Affiliate or Sub-Licensee of the Licensed Product to its wholesalers in any country of the Territory after all necessary marketing authorizations in said country have been obtained by PHARMAENIGINE in such commercial quantities of the Licensed Product as may reasonably be appropriate to establish the Licensed Product throughout the Territory (in the case of PHARMAENGINE), or the first shipment by HERMES, its Affiliate or Sub-Licensee of the Licensed Product to its wholesalers in the Retained Territory after all necessary marketing authorizations in said country have been obtained by PHARMAENIGINE in such commercial quantities of the Licensed Product as may reasonably be appropriate to establish the Licensed Product throughout the Retained Territory;

1.6 **"Commercially Reasonable Efforts"** shall mean exerting such effort and employing such resources as would normally be exerted or employed by a reasonable third party pharmaceutical company for a product of similar market potential at a similar stage of its product life, when utilizing sound and reasonable scientific, business and medical practice and judgment in order to develop the product in a timely manner and maximize the economic return to the Parties from its commercialization;

1.7 **"Development Plan"** shall mean a plan for the undertaking of all appropriate activities for the development of Licensed Product in the Territory (in the case of PHARMAENGINE) and in the Retained Territory (in the case of HERMES), to be prepared in accordance with Article 3.2;

1.8 **"Effective Date"** shall mean 26th September 2005;

1.9 **"HERMES Intellectual Property"** shall mean Intellectual Property solely owned or controlled by HERMES as listed in the Exhibit A and includes the following technologies:

(a) Patent Rights and Know-How existing as of the Effective Date and listed in the Exhibit A hereto;

(b) all divisions, substitutions, continuations, continuations-in-part (to the extent supported by the parent application), reissues, reexaminations, or extensions to the Patent Rights in Article 1.9(a);

(c) all foreign and domestic pending patent applications and all priority rights claiming priority of, or derived from the Patent Rights in Articles 1.9(a) and 1.9(b), in all jurisdictions, including any patents issuing from any of the foregoing; and

(d) any Patent Right which is issued subsequent to the Effective Date and is an improvement, modification or species invention of the Patent Rights set forth in Articles 1.9(a), 1.9(b) and 1.9(c); provided, however, that the utilization of such improvement, modification or species invention into the Licensed Product does not cause a separate application for the regulatory approval which is not merely filed due to the differences in the indication, dosage or administration route, provided such improvement or modification or species invention does not add a new functionality. Such improvement, modification or species invention shall include, without limitations, the invention(s) regarding the loading and the stability of Licensed Product.

1.10 **"ICH"** shall mean International Conference of Harmonization;

1.11 **"IND"** shall mean an investigational new drug application or any equivalent of it issued by any of the Regulatory Authorities;

1.12 **"Intellectual Property"** shall mean Patent Rights and Know-How;

1.13 **"JDC"** shall mean a Joint Development Committee to be formed in accordance with Article 2.1;

1.14 **"JDC Meeting"** shall mean the meeting(s) of JDC held by the representatives of the Parties as defined in Article 2.2;

1.15 **"Joint Project Team"** shall mean the task force to be formed by the Parties pursuant to Article 2.5;

1.16 **"Know-How"** shall mean all information relating to the Product not in the public domain of whatsoever nature, including without limitations any information regarding the manufacturing process, any non-clinical and clinical data;

1.17 **"Launch Date"** shall mean the date of first Commercial Launch by PHARMAENIGINE of the Licensed Product in a country within the Territory;

1.18 **"Licensed Product"** shall mean any Product which is covered, in whole or in part, by a Valid Claim or Know How; made by a process covered, in whole or in part, by a Valid Claim or Know-How; or whose use is covered, in whole or in part, by a Valid Claim or Know-How.

1.19 **"Marketing Plan"** shall mean a plan for the undertaking of all appropriate activities for commercialization of Licensed Product in the Territory, including pre-Commercial Launch and post-Commercial Launch marketing activities, to be prepared in accordance with Articles 3.3;

1.20 **"NDA"** shall mean a new drug application or any equivalent of it issued by any of the Regulatory Authorities;

1.21 **"Net Sales"** shall mean all purchase price amounts invoiced to the ultimate purchaser by PHARMAENGINE or its Affiliates, or any Sub-Licensees, or their respective agents or distributors, in respect of the sale of the Licensed Product less the following items to the extent that they are actually paid or allowed and specified on any documents related to such sale:

(a) normal discounts actually granted;

(b) packaging, transportation and prepaid insurance charges on shipments or deliveries to customers;

(c) cost of samples for regulatory testing, promotional and hospital listing purposes as set out in the Marketing Plan from time to time; and

(d) sales or value added taxes actually incurred and paid by PharmaEngine, its Affiliates or any Sub-licensees in connection with the sale or delivery of the Licensed Products to customers.

Provided that the total, aggregate amount of deductions under paragraphs (a), (b), (c) and (d) above with respect to any unit of Licensed Product shall not exceed [**]% of the selling price;

1.22 **"Parties"** shall mean HERMES and PHARMAENGINE, and **"Party"** shall mean either of them;

1.23 **"Patent Rights"** shall mean all issued patents (including without limitations all reissues, extensions, substitutions, confirmations, re-registrations, re-examinations, invalidations, supplementary protection certificates and patents of addition) and all pending patent applications (including without limitation all provisional applications, continuations, continuations-in-part and divisions) which relate to the Product and the identification, characterization, synthesis, use or production of the Product and which are reasonably

useful or necessary or are required for developing, using, formulating, manufacturing, filling and finishing, registering, distributing and/or selling of the Product;

1.24 **"PHARMAENGINE Intellectual Property"** shall mean Intellectual Property solely owned or controlled by PHARMAENGINE;

1.25 **"Plans"** shall mean the Development Plan and the Marketing Plan;

1.26 **"Product"** shall mean any pharmaceutical composition comprising liposomally encapsulated Irinotecan [**], including salts thereof;

1.27 **"Quarter"** shall mean each three calendar-month period in any year during the term of this Agreement ending on 31st March, 30th June, 30th September and 31st December in each year and **"Quarterly"** has a corresponding meaning;

1.28 **"Regulatory Authorities"** shall mean the body with responsibility for reviewing and granting the clinical development and marketing authorizations of the Licensed Product in each country of the Territory or outside the Territory;

1.29 **"Retained Territory"** shall mean all countries outside the Territory;

1.30 **"Royalties"** shall mean the royalties payable to HERMES in accordance with Article 8.3;

1.31 **"Serious Adverse Event"** shall mean an Adverse Event that:

(a) results in death;

(b) is life threatening;

(c) requires prolongation of existing hospitalization;

(d) results in persistent or significant disability or incapacity; or

(e) results in congenital anomaly or birth defect;

and/or other medically significant events that may jeopardise the patient or may require intervention to prevent one of the outcomes listed in the previous paragraphs of this definition;

1.32 **"Sub-licensee"** shall mean any sub-licensee set forth in Article 5;

1.33 **"Subsequent Intellectual Property"** shall mean any Know-How or Patent Rights owned or controlled by either Party with respect to the Licensed Product which is issued subsequent to the Effective Date and is not included in HERMES Intellectual Property. Subsequent Intellectual Property includes without limitations improvements or modifications or species invention which adds a new functionality to the Licensed Product;

1.34 **"Territory"** shall mean Democratic People's Republic of Korea, Indonesia, Japan, Malaysia, People's Republic of China, Republic of the Philippines, Republic of Korea, Singapore, Taiwan, Thailand, Vietnam and all countries in Europe: including Albania, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, , Latvia, Lithuania, Macedonia, Moldova, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia and Montenegro, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, and Untied Kingdom;

1.35 **"Year"** shall mean a calendar year commencing from 1st January and ending on 31st December; and

1.36 **"Valid Claim"** shall mean:

(a) any claim in any of the Patent Rights issued to HERMES, or to PHARMAENGINE in the future, relating to, derived from or useful for the use, making, or sale of the Product, which has not been held invalid or unenforceable by decision of a court or other governmental agency of competent jurisdiction, unappealable or unappealed within the time allowed for appeal, and which is not admitted to be invalid through disclaimer or otherwise not admitted by such Party who is the patentee to be invalid; and

(b) any pending claim of any Patents filed by HERMES or by PHARMAENGINE relating to, derived from or useful for the use, making, or sale of the Product; provided that examination has been timely requested for such pending claims and they are otherwise being diligently prosecuted in an effort to have them allowed and granted in an issued patent.

ARTICLE 2 - MANAGEMENT

GENERAL. The Parties shall establish a Joint Development Committee (JDC) and a Joint Project Team. The purposes of JDC shall be to serve as a decision-making body to undertake the responsibilities set forth in Article 2.3, and preventing or amicably resolving disputes between the Parties regarding the development of Licensed Product in both the Territory and the Retained Territory. JDC shall have the responsibilities and authority set forth in this Article 2 and in other provisions of this Agreement.

2.1 FORMATION & MEMBERSHIP OF JDC.

(a) Within [**] days after the Effective Date, both Parties shall establish JDC by designating its representatives by each Party to serve on JDC ("JDC Members") and by notifying the other Party of its dates of availability for the first JDC Meeting.

(b) JDC shall consist of [**] JDC Members, [**] from each of the Parties, and HERMES and PHARMAENGINE shall designate [**] representatives with appropriate expertise to serve as JDC Members. Such representatives shall at all times include each such Party's [**] of each such Party. Each of the Parties may replace any or all of its representatives of JDC at any time upon written notice to the other Party in accordance with Article 13.8 of this Agreement specifying the prior representative(s) to be replaced and the replacement(s) therefor.

2.2 MEETING.

(a) JDC shall meet at least [**] during each Year or more frequently as the Parties deem necessary, and each such meeting of JDC (JDC Meeting) of each such Year shall be held prior to [**]. JDC Meetings shall be held on such dates and times and at such places as are mutually agreed and may be held in person or by teleconference or videoconference as the Parties agree; however, at least [**] face-to-face JDC Meeting shall be held per Year. JDC Members may also communicate, discuss, or make majority voting consensus decisions in compliance with Article 2.4 from time to time by means of telecommunications, video conferences, electronic mail or correspondence, as deemed necessary or appropriate. Each party shall be responsible for all its expenses of participating in JDC Meeting.

(b) If a representative of a Party is unable to attend a JDC Meeting, such Party may designate an alternate to attend such meeting. In addition, each Party may, at its discretion, invite a reasonable number of other employees, consultants or scientific advisors to attend JDC Meeting, provided that such invitees are bound by appropriate confidential obligations.

2.3 RESPONSIBILITIES. During the term of this Agreement, JDC shall:

(a) discuss, review and coordinate the Development Plan of each Party;

(b) facilitate the license of Patent Rights and the transfer of Know-How and other information deemed necessary for the non-clinical and clinical development, regulatory activities, commercialization of the Licensed Product or its activities under this Agreement;

(c) seek the potential opportunities to plan global clinical trials for the Licensed Product and further facilitate the conduct of such global clinical trials;

(d) discuss and resolve any disputes or problems under this Agreement brought by any Party;

(e) cooperate to cope with any infringement as mentioned in Articles 9.3 and 9.4; and

(f) perform such other functions as appropriate to further the purposes of this Agreement as determined by the Parties.

2.4 DECISION MAKING.

(a) JDC Meetings shall be effective only if at least [**] representatives of each Party are present or participating. All matters brought to JDC shall be determined by consensus if possible. However, except as otherwise provided by JDC, where a decision cannot be arrived at by consensus in JDC, the matter at issue shall be decided by majority of votes made by all JDC Members present or participating in JDC Meeting. Each representative of each Party on JDC shall have one vote.

(b) If a majority vote can not be reached, each Party shall refer such matter to the Chief Executive Officer (or other nominated officers(s)) of each Party to discuss and seek to settle the matter in dispute.

(c) Notwithstanding the foregoing, PHARMAENGINE will have final decision making authorities with respect to Territory; and HERMES will have final decision making authorities with respect to Retained Territories; excepting in the event of a breach of performance by a Party under its obligations under this Agreement, in which event a dispute as to the breach shall be resolved pursuant to the Articles 13.5 and 13.10.

2.5 JOINT PROJECT TEAM.

(a) The Parties shall establish a Joint Project Team which shall meet at least [**] times per Year [**], or more frequently as the Parties deem necessary, to ensure the technical and regulatory development of the Licensed Product under this Agreement will be timely and cooperatively executed. Such meetings of Joint Project Team shall be held at times and dates and on the locations as are mutually agreed. Each Party shall have the responsibility to supply or assign appropriate personnel and all relevant data and other information needed to implement and accomplish the obligations set forth below in Article 2.5(b).

(b) The Joint Project Team shall have its principal obligations specifically to:

(1) discuss and update the development project(s) in the Development Plan under this Agreement;

(2) facilitate the coordination of the non-clinical development and clinical trials conducted by respective Parties in either the Territory or the Retained Territory;

(3) exchange and share any useful or necessary information regarding the development activities under this Agreement; and

(4) manage and oversee the development activities conducted by a Party under this Agreement pursuant to the terms of this Agreement.

ARTICLE 3 - DEVELOPMENT & COMERCIALIZATION

3.1 DEVELOPMENT ACTIVITIES.

(a) The Parties agree that, during the term of this Agreement, PHARMAENGINE shall be responsible for funding and managing all clinical supply manufacture, non-clinical, clinical development and regulatory activities in respect of the Licensed Product in the Territory in accordance with the Development Plan of PHARMAENGINE. Such activities shall include without limitation:

(1) CMC studies regarding process research, scale up and manufacture of the Licensed Product;

(2) non-clinical studies of systemic treatment in solid tumors regarding the Licensed Product;

(3) clinical trials regarding the Licensed Product;

(4) regulatory filings regarding the Licensed Product in the Territory;

(5) establishment of strategic alliance to develop the Licensed Product in the Territory, where applicable; and

(6) appointment of Sub-licenses pursuant to Article 5.4, 5.5 and 5.6, where applicable.

(b) The Parties agree that, during the term of this Agreement, HERMES shall be responsible for funding and managing all non-clinical and clinical development activities in respect of the Licensed Product in the Retained Territory in accordance with the Development Plan of HERMES. Such activities shall include without limitation:

(1) CMC studies regarding formulation research of the Licensed Product;

(2) non-clinical studies of the local treatment for brain tumors regarding the Licensed Product;

(3) clinical trials regarding the Licensed Product; and

(4) regulatory filings regarding the Licensed Product.

3.2 DEVELOPMENT PLAN.

(a) The Development Plan shall include the scientific, experimental, process development, non-clinical, clinical and regulatory activities, goals and timelines for the development of the Licensed Product for the coming Year in the Territory (in the case of PHARMAENGINE) and the Retained Territory (in the case of HERMES). The Development Plan shall be updated annually and be finalized

only after review by JDC. The Development Plan in all other provisions under this Agreement shall mean the finalized Development Plan reviewed by JDC. The annual Development Plan of each of the Parties shall be submitted to JDC for discussion and review prior to [**] in each Year (the deadline for submitting the initial Development Plan may be determined by JDC if necessary).

(b) Under the auspices of each of the Parties, the Parties shall have the following responsibilities:

(1) Each of the Parties shall be responsible for the preparation of all protocols and the conduct of all activities for which such Party is designated as the Party responsible for such activities in the Development Plan or the determination of JDC;

(2) PHARMAENGINE shall be responsible for preparing all necessary applications for regulatory approval of the Licensed Products in the countries in the Territory for which PHARMAENGINE is designated as the Party responsible for such preparation in the Development Plan or the determination of JDC, and PHARMAENGINE shall also be responsible to conduct all communications with the regulatory authorities in the Territory during the registration process. HERMES shall be responsible for preparing all necessary applications for regulatory approval of the Licensed Products in the Retained Territory for which HERMES is designated as the Party responsible for such preparation in the Development Plan or the determination of JDC, and HERMES shall also be responsible to conduct all communications with the Regulatory Authorities in the Retained Territory during the registration process; and

(3) Each of the Parties shall provide all technical data and support necessary to assist the responsible Party to prepare such applications.

(c) PHARMAENGINE shall use its best efforts to implement the development of the Licensed Product in the Territory in accordance with the timeline(s) approved by JDC or set forth in the Development Plan and in accordance with the terms of this Agreement. PHARMAENGINE shall further require its Sub-licensee in the Territory to use its best efforts to develop the Licensed Product in the Territory.

3.3 MARKETING PLAN. The Marketing Plan shall include the detailed projected pre-Commercial Launch and post-Commercial Launch activities, goals and timelines for the commercialization of the Licensed Product for the coming Year in the Territory. Not less than [**] months subsequent to the first regulatory approval date, PHARMAENGINE shall prepare and provide to HERMES an initial Marketing Plan and the annual Marketing Plan of each subsequent Year shall be provided to HERMES prior to [**] in each such Year.

3.4 STATUS REPORTING. Each Party shall prepare a [**] Development Report regarding each [**]-month period, which shall show the status and progress of the development in

respect of the Licensed Product that this Party has made during such [**]-month period against the activities and timelines listed in the Development Plan or decided in writing by JDC. Except as may be otherwise agreed upon in writing by the other party, such [**] Development Report shall be submitted to the other party within [**] days past each [**]-month period [**] and at least [**] days prior to JDC Meeting set for in Article 2. The [**] Development Report due on [**] of the year [**] shall be the [**], which details the progress that the Party has made against the activities and timelines listed in the Development Plan or decided in writing by JDC during the [**].

3.5 DETERMINATION OF DILIGENCE. If HERMES believes that PHARMAENGINE does not meet its diligence obligations pursuant to this Article 3 with respect to the Licensed Product, HERMES shall notify PHARMAENGINE with a written notice, stating the fact(s) and reason(s) held by HERMES. PHARMAENGINE shall respond in writing to this notice within [**] days on receipt of this notice from HERMES. If the Parties still can not resolve this dispute, it shall be brought to and decided by JDC as set forth in Article 2 and if necessary resolved pursuant to Articles 13.5 and 13.10.

ARTICLE 4 - REGULATORY

4.1 REGULATORY APPROVAL. In connection with the obligations set forth in Article 3.2, PHARMAENGINE shall use all of its best endeavors to obtain regulatory approval for the Licensed Product in accordance with the Development Plan in the Territory during the term of this Agreement. Each Party, subject to Articles 6.2 and 6.3 hereunder, shall have the right to access and cross-reference the IND(s) and NDA(s) held by the other Parties or any regulatory filing made under this Agreement to the extent necessary or useful, in the case of PHARMAENGINE, to exercise the licenses and rights granted under this agreements, and in the case of HERMES, to exercise any retained right in respect of Licensed Product.

4.2 ADVERSE EVENT REPORT. During the term of this Agreement, each Party shall report any actual or suspected Serious Adverse Event and non-Serious Adverse Event in respect of the Licensed Product or any information relevant to such Serious Adverse Event to:

(a) the Regulatory Authorities in compliance with the applicable laws or regulations with respect to the adverse drug reaction reports in the Territory (in case of PHARMAENGINE) and in the Retained Territory (in the case of HERMES);

(b) the primary liaison person (as set forth in Article 4.3) of the other Party any Serious Adverse Event information obtained by such Party concerning drug reactions that are life-threatening or cause death by telephone or in writing within [**] Business Days [**] days after initial determination by such Party that the Adverse Event is serious;

(c) the primary liaison person (as set forth in Article 4.3) of the other Party any Serious Adverse Event information obtained by such Party and not falling within this Article 4.2 (b) by telephone or in writing within [**] Business Days after initial determination by such Party that the Adverse Event is serious; and

(d) the primary liaison person (as set forth in Article 4.3) of the other Party any non-Serious Adverse Event information obtained by such Party in writing within [**] days after the end of the [**].

4.3 COMMUNICATION. Within [**] days of the Effective Date, each Party shall appoint a primary liaison person to communicate with each other with regard to information to be exchanged pursuant to this Article 4.2.

4.4 RECALLS. HERMES may at its discretion and shall, if requested to do so by PHARMAENGINE, recall any Licensed Product provided by PHARMAENGINE under Article 7.1 in the Retained Territory. The costs and expenses incurred by HERMES in connection with such recall shall be borne by HERMES, unless such recall is both:

(a) requested by PHARMAENGINE or the Regulatory Authorities in the Retained Territory by reason of safety consideration caused from the manufacturing process of PHARMAENGINE; and

(b) does not arise from any material breach of this Agreement by HERMES or negligence or intentional misconduct on the part of HERMES.

ARTICLE 5 - LICENSES & [**]

5.1 LICENSES OF HERMES INTELLECTUAL PROPERTY. HERMES hereby grants to PHARMAENGINE an exclusive right and license under HERMES Intellectual Property applicable to the Licensed Product to develop, manufacture, market, sell, use, offer for sale and import the Licensed Product in the Territory during the term of this Agreement.

5.2 LICENSES OF PHARMAENGINE INTELLECTUAL PROPERTY. PHARMAENGINE hereby grant to HERMES an exclusive right and license under PHARMAENGINE Intellectual Property applicable to the Licensed Product to develop, manufacture, market, sell, use, offer for sale and import the Licensed Product in the Retained Territory during the term of this Agreement.

5.3 [**]. During the term of this Agreement, if HERMES [**], then HERMES shall [**] PHARMAENGINE [**] for the purpose to develop, manufacture, market, sell, use, offer for sale and import Licensed Product based on said Subsequent Intellectual Property in the Territory. Once HERMES identifies and describes in writing a particular Subsequent Intellectual Property, together with the[**] the Subsequent Intellectual Property in conjunction with the Licensed Product in the Territory (the "[**]"), and delivers to PHARMAENGINE the [**], then PHARMAENGINE shall have [**] days thereafter to give to HERMES [**]. If PHARMAENGINE does not [**], then HERMES shall be [**], so long as HERMES does not, during the term of this Agreement, [**]. In order to preserve the confidentiality of the [**] which makes the [**]will not be disclosed to PHARMAENGINE (unless the [**] expressly authorizes such disclosure), but a general description of the nature of the [**] will be furnished to PHARMAENGINE [**].

5.4 SUB-LICENSE.

(a) HERMES agrees PHARMAENGINE may, with HERMES' prior written consent, grant sub-licenses under the license granted in Article 5.1 to develop and commercialize the Licensed Product in the Territory so long as such Sub-licensee(s) honors all the terms of this Agreement for the benefit of HERMES.

(b) In the case of HERMES as a licensee pursuant to Article 5.2, PHARMAENGINE agrees HERMES may grant sub-licenses under such granted license in Article 5.2 to develop or commercialize the Licensed Product in the Retained Territory so long as such Sub-licensee(s) honors all the terms of this Agreement for the benefit of PHARMAENGINE.

5.5 FREE CHOICE OF MARKETING AND SALES PARTNER. Notwithstanding the foregoing in this Article 5, PHARMAENGINE may at its sole discretion, without the limitations set forth in Article 5.4, to select and grant the right to any third parties to market, sell and distribute the Licensed Product in the Territory; provided, however, that such third parties shall agree to be bound by the obligations of confidentiality at least as stringent as those set forth in Article 11 prior to the disclosure of any confidential or proprietary information obtained from HERMES.

5.6 FREE CHOICE OF CONTRACT MANUFACTURER AND CONTRACT RESEARCH ORGANIZATION. Notwithstanding the foregoing in this Article 5, PHARMAENGINE may at its sole discretion, without the limitations set forth in Article 5.4, to select and have any third-party contract manufacturer to manufacture on behalf of PHARMAENGINE the Licensed Product in the Territory, or to select and have any third-party contract research organization use the Licensed Product in the Territory to perform studies on behalf of PHARMAENGINE; provided, however, that such third parties shall agree to be bound by the obligations of confidentiality at least as stringent as those set forth in Article 11 prior to the disclosure of any confidential or proprietary information obtained from HERMES.

5.7 IRINOTECAN. PHARMAENGINE acknowledges that it is aware of the fact that a third party [**] holds patent rights in some countries for the composition of matter for the irinotecan compound, which is marketed by [**] under the product name of [**]; and which patent rights are expected to expire in the year [**].

ARTICLE 6 - INFORMATION TRANSFER

6.1 INFORMATION TRANSFER.

(a) During the term of this Agreement, each Party shall provide to the other Party any material, data or other information to the extent necessary or useful for developing, making regulatory filings, or marketing the Licensed Product, including without limitations any such information relating to Patent Rights and Know-How, from time to time as such data and information is developed or acquired by such Party. HERMES agrees to make available to PHARMAENGINE, including without limitations:

(1) its Know-How and experiences in respect of the Licensed Product and the process research in liposomal formulations and scale up, and their relevant biological data; and

(2) the data of the preclinical pharmacology studies, toxicology studies and clinical trials in respect of the Licensed Product for local cancer treatment.

PHARMAENGINE agrees to make available to HERMES, including without limitations, its Know-How and experiences in respect of the Licensed Product and scale-up procedures and all data of the preclinical pharmacology studies, toxicology studies and clinical trials.

(b) All such data and information exchanged or required to be exchanged by any Party pursuant to this Article 6 or other provisions under this Agreement shall be owned by such transferring Party.

6.2 PERMISSION OF HERMES. HERMES hereby grants PHARMAENGINE the right of access, the right of reference and the right to use and incorporate all information provided to PHARMAENGINE pursuant to this Article 6 or other provisions under this Agreement in obtaining the regulatory approval of the Licensed Product within the Territory and in performing the development, commercialization and all PHARMAENGINE's obligations in respect of the Licensed Product under this Agreement.

6.3 PERMISSION OF PHARMAENGINE. PHARMAENGINE hereby grants HERMES the right of access, the right of reference and the right to use and incorporate all information provided to PHARMAENGINE pursuant to this Article 6 or other provisions under this Agreement in regulatory approval of Licensed Product within the Retained Territory and in performing the development, commercialization and all HERMES' obligations in respect of the Licensed Product under this Agreement.

ARTICLE 7 - MANUFACTURE & SUPPLY

GENERAL. PHARMAENGINE shall be responsible for the manufacture, supply and the export permit of the Licensed Product to HERMES at the supplier's premises. HERMES shall be responsible for obtaining the import permit from the FDA, or other Regulatory Authority in the Retained Territory as the case may be, and paying any costs associated with the delivery, including the costs of shipping, shipment insurance and any import or export duty, and for labeling and packaging the Licensed Product.

7.1 CLINICAL SUPPLY. During the term of this Agreement, HERMES shall have the option to obtain Licensed Product from PHARMAENGINE under the terms and conditions stipulated herein. PHARMAENGINE shall supply HERMES the Licensed Product for use by HERMES in the conduct of non-clinical or clinical trials and other activities regarding the development of the Licensed Product under this Agreement in the Retained Territory, and:

(a) any Licensed Product which is supplied by PHARMAENGINE pursuant to this Article 7.1 and is used in the first phase I clinical trial conducted by HERMES in the Retained Territory shall be provided [**]; and

(b) any Licensed Product which is supplied by PHARMAENGINE pursuant to this Article 7.1 and is used in the development activities, except as set forth in (a) of this Article 7.1, shall be supplied at PHARMAENGINE's [**] including such [**].

7.2 COMMERCIAL SUPPLY. The Parties, at their option, agree to negotiate in good faith on commercial terms and enter into a supply agreement regarding the commercial supply in the future.

7.3 QUALITY. PHARMAENGINE agrees that any Licensed Product to be manufactured by or on behalf of PHARMAENGINE for the conduct of Plans or any purposes contemplated by this Agreement shall be manufactured in compliance with ICH guidelines and any applicable laws, guidelines and regulations, and to the best of PHARMAENGINE's knowledge and ability shall be compliant with the requirements of the United States laws, guidelines, and regulations, including the U.S. Food and Drug Administration regulations on the manufacture of pharmaceutical products for human use.

ARTICLE 8 - PAYMENTS, TAXES & RECORDS

8.1 CONSIDERATION. In consideration of the rights and licenses granted hereunder to PHARMAENGINE in respect of the Licensed Product, PHARMAENGINE shall pay HERMES the amounts described in this Article 8.

8.2 UPFRONT AND MILESTONE PAYMENTS. PHARMAENGINE shall pay to HERMES:

(a) the upfront payment of one million United States Dollars (US $1,000,000) within [**] days after the Effective Date of this Agreement;

(b) the milestone payment of [**] United States Dollars (US $[**]) within [**] days after the initiation of the [**];

(c) the milestone payment of [**] United States Dollars (US $[**]) within [**] days after the initiation of the [**]; and

(d) the milestone payment of [**] United States Dollars (US $[**]) within [**] days after the approval of the [**].

8.3 ROYALTIES. PHARMAENGINE shall pay to HERMES the Royalties equals to the sum of [**] percent ([**]%) of the Net Sales of the Licensed Product in Europe plus [**] percent ([**]%) of the Net Sales of the Licensed Product in the Territory in Asia. PHARMAENGINE shall prepare a statement in respect of each Quarter, which shall show for the Quarter the aggregate Net Sales. Such statement shall be submitted to HERMES within [**] days of the end of the Quarter to which it relates together with remittance for the Royalties in respect of such Quarter.

8.4 RECORDS. PHARMAENGINE shall during the term of this Agreement following the first Launch Date keep accurate records of all Net Sales and books of account containing all the data necessary for the calculation of the Royalties for [**] prior years.

8.5 AUDITING. The records and books of account referred to in Article 8.4 shall, on a reasonable prior written notice not less than [**] Business Days having been given by HERMES, be open during normal working hours on any Business Day for inspection by a public accounting firm of HERMES' own selection, except the one to which PHARMAENGINE or PHARMAENGINE'S Sub-licensee may have reasonable objection, not more often than [**] each Year, for not more than [**] prior years. HERMES may exercise such right until the end of [**] after termination or expiration of this Agreement. The cost of such inspection shall be borne by HERMES, provided, however, if an audit discloses an underpayment of more than five percent (5%) of the amount due for the records so audited, then the costs for such audit shall be paid by PHARMAENGINE.

8.6 LATE PAYMENT. If any payment under this Article 8 is overdue, PHARMAENGINE shall pay interest thereon at an annual rate of the prime rate quoted by the Bank of America, such interest to run from the date upon which payment of such sum became due

until payment thereof in full together with such interest by PHARMAENGINE (whether before or after any judgment).

8.7 TAXES. All sums due to HERMES shall be paid in full without deduction of withholding taxes, charges and other duties except insofar as HERMES shall be capable of obtaining a full credit therefore. The Parties agree to cooperate in all respects necessary to take advantage of such double taxation agreements as may be available. In the event that PHARMAENGINE is prohibited by law from making such payments unless such deductions are made or withheld therefrom, then PHARMAENGINE shall pay such additional amounts as necessary in order that the net amount(s) received by HERMES, after such deduction or withholding prepaid by PHARMAENGINE, equal to the amount(s) which would have been received if such deduction or withholding had not occurred; provided, however, that any approved rebate of such tax subject to Article 8.8 shall be returned to and owned by PHARMAENGINE.

8.8 AUTHORIZATION. HERMES agrees to authorize and provide adequate assistances to PHARMAENGINE to file and prosecute on HERMES' behalf all applications for and only for the tax rebate and/or exemption or reduction in accordance with Article 4 and/or Article 25 of Taiwan's applicable Income Tax Act regarding the income of HERMES paid by PHARMAENGINE and/or the technical services rendered by HERMES to PHARMAENGINE under this Agreement.

8.9 CURRENCY. Unless otherwise agreed by the Parties, all payments required to be made under this Agreement shall be made in United States Dollars via wire transfer to an account designated in advance by the receiving Party. Where any Royalties or other sums falling due are calculated in a currency other than United States Dollars, they shall be converted into United States Dollars by reference to the exchange rate when the monies are actually converted into United States Dollars if this occurs during the payment term set forth in Articles 8.2, 8.3 and 8.6; or in the event the monies are not actually converted into United States Dollars, spot rate of currency exchange published in The Wall Street Journal, Eastern Edition for the last day of the payment term of such Quarter.

ARTICLE 9 - INTELLECTUAL PROPERTY

9.1 OWNERSHIP OF INVENTIONS. HERMES shall own the entire right, title and interest in and to all Patent Rights and Know-How made solely by employees or consultants of HERMES or acquired solely by HERMES. PHARMAENGINE shall own the entire right, title and interest in and to all Patent Rights and Know-How made solely by employees or consultants of PHARMAENGINE or acquired solely by PHARMAENGINE. The Parties shall jointly own all right, title and interest in and to all Patent Rights and Know-How made jointly by employees or consultants of both

HERMES and PHARMAENGINE during the term of this Agreement; and said joint ownership rights shall be pursuant to the U.S. patent laws, that is, each joint owner is entitled to use the jointly owned rights without consent from or accounting to the other joint owner.

9.2 PROSECUTION OF PATENTS.

(a) HERMES shall have the sole right (and not the obligation) to prosecute and maintain patent protection in the Territory for HERMES Intellectual Property solely owned by HERMES. PHARMAENGINE shall reimburse HERMES on a [**] basis for the expenses incurred for the prosecution and maintenance of patent protection for HERMES Intellectual Property in the Territory ("Expenses"). In the event that such patent protection licensed to PHARMAENGINE is licensed to one or more HERMES' licensees in any country of the Territory at the time when HERMES invoices PHARMAENGINE for the aforesaid reimbursement, in said country PHARMAENGINE shall only bear the amount equal to [**]. HERMES shall bear the expense of prosecution and maintenance of HERMES Intellectual Property that HERMES elects to prosecute or maintain outside the Territory.

(b) PHARMAENGINE shall have the sole right (and not the obligation) to prosecute and maintain patent protection in the Territory for PHARMAENGINE Intellectual Property solely owned by PHARMAENGINE. In the event that such PHARMAENGINE Intellectual Property is licensed to HERMES pursuant to Article 5.2, HERMES shall reimburse or subsidize PHARMAENGINE on a Quarterly basis for the expenses incurred for the prosecution and maintenance of patent protection for such PHARMAENGINE Intellectual Property in the Retained Territory; provided, however, that in the event that such patent protection licensed to HERMES is licensed to one or more PHARMAENGINE's licensees in any country of the Retained Territory at the time when PHARMAENGINE invoices HERMES for the aforesaid reimbursement, in said country HERMES shall only bear the amount equal to [**]. PHARMAENGINE shall bear the expense of prosecution and maintenance of PHARMAENGINE Intellectual Properly that PHARMAENGINE elects to prosecute or maintain outside the Retained Territory.

(c) Except as otherwise decided in writing by JDC, HERMES shall have the right (and not the obligation) to prosecute and maintain patent protection in the Territory for any Patent Rights jointly made by HERMES and

PHARMAENGINE during the term of this Agreement in the name of both HERMES and PHARMAENGINE. PHARMAENGINE shall make available to HERMES or its authorized attorneys, agents, or representatives, such of its employees whom HERMES in its reasonable judgment deems necessary, in order to assist it in obtaining patent protection for such jointly made patent right. Each Party shall [**] for prosecution and maintenance for any jointly made Patent Rights under this Article 9.2(c) in the Territory and the Retained Territory.

(d) In the event that a Party elects not to seek or continue to seek, or maintain, patent or secrecy protection of all or part of its Intellectual Property with respect to the Licensed Product under this Agreement (whether jointly owned by the Parties or solely owned by a Party) (the "Elected Intellectual Property"), such Party shall promptly notify the other Party in writing of such election, and the other Party shall have the right to seek or continue to seek or maintain patent or secrecy protection of said Elected Intellectual Property in its respective territory (in the Territory, if PHARMAENGINE, or in Retained Territory, if HERMES) at its own risk and expense. In any such case, the Party that has, under this Agreement, control over seeking, continuing to seek, or maintaining protection of such Elected Intellectual Property shall, based on good faith, and upon written request from the other Party, assign its rights in and to such Elected Intellectual Property to that other Party in the other Party's respective territory, and shall continually prosecute and maintain such Elected Intellectual Property until the completion of this assignment.

9.3 INFRINGEMENT.

(a) Each Party shall report in writing to the other Party during the term of this Agreement any known or suspected infringement of any Patent Rights owned by a Party, or unauthorized use or misappropriation of any Know-How owned by a Party, and will provide the other Party with all available evidence supporting such infringement or unauthorized use or misappropriation.

(b) PHARMAENGINE shall have the right to initiate an infringement or other appropriate suit anywhere in the Territory against any third party who at any time has infringed, or is suspected of infringing, any of HERMES Patent Rights or jointly made Patent Right in this Article 9 during the term of this Agreement applicable to the Licensed Products in the Territory, or has used without proper authorization all or any portion of the Know-How of HERMES applicable to the Licensed Products in the Territory. HERMES shall cooperate fully with and provide all necessary assistance to PHARMAENGINE in the proceeding of such claim, at the expense of PHARMAENGINE. HERMES may initiate such claim at its sole discretion only if PHARMAENGINE fails to initiate such claim within [**] days after receipt of a written request from HERMES which stating the infringer (or suspected infringer) and the relevant fact.

(c) HERMES shall have the right to initiate an infringement or other appropriate suit anywhere in the Retained Territory against any third party who at any time has

infringed, or is suspected of infringing, any of PHARMAENGINE Patent Rights or jointly made Patent Right in this Article 9 during the term of this Agreement applicable to the Licensed Products in the Retained Territory, or has used without proper authorization all or any portion of the Know-How of PHARMAENGINE applicable to the Licensed Products in the Retained Territory. PHARMAENGINE shall cooperate fully with and provide all necessary assistance to HERMES in the proceeding of such claim, at the expense of HERMES. PHARMAENGINE may initiate such claim at its sole discretion only if HERMES fails to initiate such claim within [**] days after receipt of a written request from PHARMAENGINE which stating the infringer (or suspected infringer) and the relevant fact.

(d) Neither Party shall settle any claims or suits involving Patent Rights of the other Party without obtaining the prior written consent of the other Party, which consent shall not be unreasonably held.

(e) Any recovery realized from pursuing an infringement claim against a third party shall be distributed and allocated (i) first to reimburse [**] percents ([**]%) of the [**] costs incurred to pursue the infringement action, and (ii) the remainder shall be distributed and allocated between the Parties [**] to the damages caused to each Party by the infringement.

9.4 CLAIMED INFRINGEMENT.

(a) In the event that a third party at any time provides a written notice of a claim to, or brings an action, suit or proceeding against, either Party, or any of their respective Affiliates or Sub-licensee, claiming infringement of its patent rights or unauthorized use or misappropriation of its know-how, based upon an assertion or claim arising out of the development, use, manufacture, distribution, importation or sale of Licensed Product under this Agreement ("Third Party Claim"), such Party shall promptly notify the other Party of such Third Party Claim or the commencement of the action, suit or proceeding thereof, enclosing a copy of such Third Party Claim and all papers served. Each Party agrees to make available to the other Party its advice and counsel regarding the technical merits of any such Third Party Claim at no cost to the other Party and to offer reasonable assistance to the other Party at no cost to the other Party.

(b) Except as otherwise decided by JDC, the Party against which such Third Party Claim is brought shall defend against such Third Party Claim at its sole expense and the other Party shall have the option to participate in any such suit at its own expense. Such other Party shall reasonably cooperate with the Party conducting the defense against such Third Party Claim.

(c) If, in any country in the Territory, PHARMAENGINE is required (either by final judgment from a court of competent jurisdiction or pursuant to the terms of any settlement that complies with the provisions of Article 9.4) to pay a third party a royalty or make any payment of any kind for the right to practice HERMES

Intellectual Property in said country (Payment to Third Party), except as otherwise negotiated with good faith and determined by both Parties in JDC, an amount:

(1) equal to the [**] percent ([**] %) of Payment to Third Party shall be deducted on a [**] basis from the Royalties payable in said country under Article 8 to the extent that such deduction shall be not more than [**] percents ([**] %) of the Royalties payable in said country under Article 8, in the event that the infringed patent right of such third party is a prior art of the technology at issue, or that the claim(s) of HERMES Patent Rights at issue is invalid or may be invalidated by such third party; and

(2) equal to the Royalty to Third Party shall be deducted on a [**] basis from the Royalties payable in said country under Article 8 to the extent that such deduction shall be not more than [**] percents ([**] %) of the Royalties payable in said country under Article 8, in the event that PHARMAENGINE is necessary to acquire the license(s) from such third party while practicing the technology in accordance with HERMES Intellectual Property;

However, in no case shall the Royalties payable in said country after said deductions be less than [**] percent ([**] %) of Net Sales in said country.

(d) Neither Party shall settle any Third Party Claim involving rights of the other Party without obtaining the prior written consent of the other Party, which consent shall not be unreasonably withheld.

ARTICLE 10 - WARRANTY AND INDEMNIFICATION

10.1 MUTUAL REPRESENTATIONS AND WARRANTIES. As of the Effective Date, each Party represents and warrants to the other that it is a corporation duly organized, validly existing and in good standing under the laws of the state in which it is incorporated, and has full corporate power and authority and the legal right to own and operate its property and assets and to carry on its business as it is now being conducted and is contemplated in this Agreement, including, without limitation, the right to grant the licenses granted hereunder.

10.2 AUTHORITY AND BINDING AGREEMENT. As of the Effective Date, each Party represents and warrants to the other that

(a) it has the corporate power and authority and the legal-right to enter into this Agreement and perform its obligations hereunder;

(b) it has taken all necessary corporate action on its part required to authorize the execution and delivery of the Agreement and the performance of its obligations hereunder; and

(c) the Agreement has been duly executed and delivered on behalf of such Party, and constitutes a legal, valid and binding obligation of such Party and is enforceable against it in accordance with its terms.

10.3 ABSENCE OF LITIGATION. As of the Effective Date, HERMES represents and warrants to PHARMAENGINE that it is not aware of any pending or threatened litigation (and has not received any communication relating thereto) which alleges that HERMES' activities, with respect to the Licensed Product or related to this Agreement, have infringed or misappropriated any of the intellectual property rights of any other person or entity. To the best of HERMES' knowledge, there is no material unauthorized use, infringement or misappropriation of any of its intellectual property rights licensed hereunder.

10.4 NO CONFLICT. Each Party represents and warrants to the other that it has not entered, and will not enter, into any agreement with any third party that is in conflict with rights granted to the other Party under this Agreement, and has not taken and will not take any action that would in any way prevent it from granting the rights granted to the other Party under this Agreement, or that would compete by way of commercialization of a product which is substantially similar to Licensed Product under this Agreement or otherwise materially conflict with or adversely affect the rights granted to

the other Party under this Agreement. Its performance and execution of this Agreement will not result in a breach of any other contract to which it is a party.

10.5 DISCLAIMER OF WARRANTIES. EXCEPT AS SET FORTH IN THIS AGREEMENT, THIS LICENSE AND THE ASSOCIATED PATENT RIGHTS ARE PROVIDED WITHOUT ANY IMPLIED REPRESENTATIONS OR WARRANTIES, SUCH AS WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

10.6 NO PRIOR ART & SUFFICIENCY. Except as set forth in this Agreement or as HERMES has otherwise advised PHARMAENGINE in writing prior to the Effective Date, HERMES represents and warrants to PHARMAENGINE that as of the Effective Date,

(a) to the best of its knowledge, there is no prior art that would prevent at least one Valid Claim of the HERMES Patent Rights from issuance as set forth in Exhibit A(I) under any subsection of 35 U.S.C. Section 102;

(b) to the best of its knowledge, it has no knowledge of any public knowledge or use anywhere, by anyone, of the subject matter claimed in at least one Valid Claim in the HERMES Patent Rights as set forth in Exhibit A(I) before the invention date thereof;

(c) to the best of its knowledge, it has no knowledge of the subject matter claimed in at least one Valid Claim in the HERMES Patent Rights as set forth in Exhibit A(I) having been patented or described anywhere in a printed publication by anyone before the invention date thereof;

(d) to the best of its knowledge, it has sufficient legal and/or beneficial title and ownership under its Intellectual Property rights necessary for it to fulfill its obligations under this Agreement; and

(e) it has granted PHARMAENGINE a license to all Patent Rights under Hermes Intellectual Property which HERMES owns or controls in connection with the Licensed Product as of the Effective Date.

10.7 INFRINGEMENT OF PATENT BY THIRD PARTIES. HERMES represents and warrants to PHARMAENGINE that as of the Effective Date, to the best of its knowledge, there is no material unauthorized use, infringement or misappropriation of any of HERMES Intellectual Property rights by third parties relevant to the licensed Product under this Agreement.

10.8 LIMITATIONS OF LIABILITY. IN NO EVENT WILL EITHER PARTY BE LIABLE TO THE OTHER FOR ANY INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THIS AGREEMENT OR MANUFACTURE, SALE, OR USE OF THE LICENSED PRODUCT.

10.9 INDEMNIFICATION BY PHARMAENGINE. PHARMAENGINE will indemnify and hold harmless HERMES, its trustees, officers, agents and employees, from and against any and all liability, loss, damage, action, claim or expense suffered or incurred by any such indemnified party (including reasonable attorney's fees) (each, a "Liability") which results from or arises out of the gross negligence or willful conduct of PHARMAENGINE with respect to the development, use, manufacture, promotions, sale, distribution or other disposition of any Licensed Product by PHARMAENGINE, its Affiliates or Sub-licensee. However, in each case, such indemnification in this Article 10.8 shall not apply to the extent that:

(a) such Liability is attributable to the nature or unexpected properties of the Licensed Product; or

(b) such Liability is a result of the gross negligence or willful misconduct of HERMES, or of a breach by HERMES of its representations or warranties hereunder, or of any matter for which HERMES is required to indemnify PHARMAENGINE under Article 10.9; or

(c) such Liability is due to the fact that HERMES has not observed all reasonable instructions given by PHARMAENGINE in respect of the Licensed Product, including instructions as to warning to be given with respect to the potential or actual adverse effects of the Licensed Product, instructions to cease the administration or the sale of the Licensed Product or instructions to provide certain medical care of the patient in clinical trials under this Agreement; or

(d) such Liability is derived from the production or implementation process of the Licensed Product that HERMES has performed and fails to meet the instructions or documentation provided by PHARMAENGINE.

10.10 INDEMNIFICATION BY HERMES. HERMES will indemnify and hold harmless PHARMAENGINE, its trustees, officers, agents and employees from and against any Liability which results from or arises out of the gross negligence or willful conduct with respect to the development, use, manufacture, promotions, sale, distribution or other disposition of any Licensed Product by HERMES, its Affiliates or licensee. However, in each case, such indemnification in this Article 10.9 shall not apply to the extent that:

(a) such Liability is attributable to the nature or unexpected properties of the Licensed Product; or

(b) such Liability is a result of the gross negligence or willful misconduct of PHARMAENGINE, its Affiliates or Sub-licensee, or respective employees, agents, directors, officers or consultants, or of a breach by PHARMAENGINE of its representation or warranties hereunder, or of any matter for which PHARMAENGINE is required to indemnify HERMES under Article 10.8; or

(c) such Liability is due to the fact that PHARMAENGINE has not observed all reasonable instructions given by HERMES in respect of the Licensed Product, including instructions as to warning to be given with respect to the potential or actual adverse effects of the Licensed Product, instructions to cease the administration or the sale of the Licensed Product, or instructions to provide certain medical care of the patient in clinical trials under this Agreement; or

(d) such Liability is derived from the production or implementation process of the Licensed Product that PHARMAENGINE has performed and fails to meet the instructions or documentation provided by HERMES.

10.11 INSURANCE. Either Party shall, at its own expense, insure the Licensed Product against all liability claims to be in compliance with the laws and regulations in each country of

the Territory (in the case of PHARMAENGINE) and in the Retained Territory (in the case of HERMES), including both clinical trials insurance and product liability insurance, arising in respect of the Licensed Product.

ARTICLE 11 - CONFIDENTIALITY

11.1 CONFIDENTIALITY. Each of the Parties agrees that any confidential or proprietary information obtained from the other Party:

(a) shall not be used by the receiving Party except in connection with the activities contemplated by this Agreement or in order to further the purpose of this Agreement;

(b) shall be maintained in confidence by the receiving Party; and

(c) shall not be disclosed by the receiving Party to any third party who is not a consultant of, or an advisor to, the receiving Party or an Affiliates or Sub-licensee of the receiving Party without prior written permission of the disclosing Party. Notwithstanding the foregoing, the receiving Party shall be entitled to use and disclose any confidential or proprietary information obtained from the disclosing Party which:

(1) was known or used by the receiving Party or its Affiliates prior to its date of disclosure to the receiving Party as demonstrated by legally admissible evidence available to the receiving Party or its Affiliates; or

(2) either before or after the date of the disclosure to the receiving Party is lawfully disclosed to the receiving Party or its Affiliates by sources other than the disclosing Party rightfully in possession of the confidential or proprietary information obtained from the disclosing Party; or

(3) either before or after the date of the disclosure to the receiving Party becomes published or otherwise part of the public domain through no fault or omission of the receiving Party or its Affiliates; or

(4) is independently developed by or for the receiving Party or its Affiliates without reference to or in reliance upon the confidential or proprietary information obtained from the disclosing Party as demonstrated by competent written records; or

(5) is reasonably necessary to conduct clinical trials or to obtain regulatory approval of Licensed Product or for the prosecution and maintenance of Patent Right; or

(6) is reasonably necessary required in order for a Party obtain financing or conduct discussions with potential development or commercialization partner so long as third party recipients are bound by an obligation of confidentiality; or

(7) is required to be disclosed by the receiving Party to comply with applicable laws or regulations or legal process, provided that the receiving Party provides prior written notice of such disclosure to the disclosing

Party and takes reasonable and lawful actions to avoid or minimize the degree of such disclosure.

11.2 PERMITTED DISCLOSURES. Each Party agrees that it will provide the confidential or proprietary information obtained from the disclosing Party solely to its employees, consultants and advisors, and the employees, consultants and advisors of its Affiliates or Sub-licensee, who have a need to know and an obligation to maintain in confidence the confidential or proprietary information obtained from the disclosing Party. Either Party shall be liable for any breach of the non-disclosure obligation of its consultants, advisors, Affiliates and Sub-licensee(s).

11.3 PUBLICATIONS. Each Party shall have the right to publish the results of any studies under this Agreement conducted solely by such Party, consistent with the protection of the confidentiality as set forth in this Article 11, and after providing a copy of the material intended for publication or presentation to the other Party for review and comment at least [**] days prior to the date of publication or presentation. Any publication shall appropriately acknowledge the support of the other Party. Any results of global clinical trials or the studies conducted jointly by the Parties shall be published in accordance with a joint publication strategy. Such joint publication strategy shall be discussed and determined by JDC when appropriate.

ARTICLE 12 - TERM & TERMINATION

12.1 TERM. This Agreement shall be effective on the Effective Date and shall remain effective for the longer of: (i) fifteen (15) years after the Effective Date, or (ii) the last to expire of the Patent Rights under HERMES Intellectual Property unless earlier terminated pursuant to this Article 12.

12.2 TERMINATION FOR CAUSE. Each party shall have the right to terminate this Agreement, upon written notice to the other Party, in the event the other Party materially breaches its obligations under this Agreement, and does not remedy such breach within [**] days after receipt of written notice from the non-breaching Party specifically stating that such Party intends to terminate the Agreement if the breaching Party fails to remedy the breach within a [**]-day ([**]-day) time period.

12.3 TERMINATION BY HERMES. Without prejudice to any other right or remedy that it may have, HERMES may terminate this Agreement forthwith by notice in writing to PHARMAENGINE given at any time, if PHARMAENGINE fails to pursue Commercially Reasonable Effort as required for the Licensed Product, and such failure is not cured within a reasonable time decided by JDC, but not later than [**] months after written notice of failure is given to PHARMAENGINE.

12.4 TERMINATION BY PHARMAENGINE. PHARMAENGINE may:

(a) terminate the license(s), in one or more countries in the Territory, under this Agreement by service of six (6) months' written notice to HERMES at any time during the term of this Agreement; and

(b) terminate the license(s) under this Agreement, in one or more countries in the Territory, forthright upon written notice to HERMES at any time during the term of this Agreement, in the event that the Patent Rights of HERMES Intellectual Property is invalid, disclaimed, unenforceable, abandoned, or finally rejected.

12.5 CONSEQUENCES OF TERMINATION. In the event that this Agreement is terminated by HERMES under Articles 12.2 and 12.3, all licenses and right granted by HERMES to PHARMAENGINE under this Agreement shall terminate; provided, however, that to the extent such license and right are required in respect of clinical trials that are ongoing and cannot reasonably be terminated promptly due to "health or safety reasons or the requirements of the applicable law, such licenses and rights will continue in effect until such clinical trials are properly terminated; and all improvements, studies, approvals, data, patent rights applicable to the Licensed Product shall revert and assigned to HERMES. Payments made to HERMES under this Agreement prior to the date of termination are not recoverable by PHARMAENGINE, and any payments due HERMES under Article 8 of this Agreement shall be payable to HERMES as of the date of termination.

ARTICLE 13 - MISCELLANEOUS

13.1 ENTIRE AGREEMENT. This Agreement constitute the entire agreement pertaining to the subject matter hereof and supersede any and all prior understandings, negotiations, commitments, discussions, writings, including the TTY Research and Development Agreement, whether oral or written, of the parties with respect to the same subject matter. This Agreement shall not be waived, released, discharged, changed or modified in any manner, in whole or in part, except by an instrument signed by the duly authorized representative of both parties hereto, which document shall make specific reference to this Agreement and shall express the plan or intention to modify the same.

13.2 SEVERABILITY. If any term, clause, sentence or paragraph of this Agreement is declared or becomes unenforceable, invalid, or illegal in any respect under the law of any relevant jurisdiction, such term or provision or part thereof shall be deemed to have been severed from the remaining terms of this Agreement and the terms and conditions hereof shall remain in full force and effect as if this Agreement had been executed without the offending provision appearing herein.

13.3 NO IMPLIED WAIVERS, Any party's failure to enforce any provision of this Agreement shall not be construed as a waiver of such party's right to enforce such provision, and any waiver of a provision shall not in any way affect such party's right to enforce such provision at a later time.

13.4 PUBLICITY. Any public announcement with respect of the execution of this Agreement, the conduct of activities under the Plans or significant developments thereunder will be reviewed by the Parties in advance of such announcement.

13.5 DISPUTE RESOLUTION. In the event of any dispute, controversy or claim arising out of or relating to this Agreement and not expressly provided for elsewhere herein, the Parties shall try to settle such dispute, controversy or claim amicably in JDC meeting or by referring such dispute, controversy or claims to the Chief Executive Officer or other officer(s) designated by the Chief Executive Officer. In the event that after [**] days JDC or the Chief Executive officers of both Parties fail to resolve the matter, the Parties agree to finally settle such matter by arbitration set forth in Article 13.10.

13.6 FORCE MAJEURE. Either Party shall be excused from performing its obligations as required by this Agreement to the extent such performance is delayed or prevented by any events beyond such party's reasonable control, including but not limited to acts of God, acts of war or hostilities, acts or omissions of any civil or government agency or officer, invasion, revolution, civil commotion, fire, flood, severe earthquake, typhoon or cyclone, lightning, plague or other epidemic, or circumstances which are beyond reasonable control of the Party affected and which such Party could not reasonably be expected to have avoided or overcome it or its consequences by exercise of reasonable care and diligence, provided that such performance shall be excused only to the extent of and during such disability. Any time specified for completion of performance in this Agreement failing due to, during, or subsequent to the occurrence of any of such events shall be automatically extended for a period of time equal to the period of such disability.

13.7 ASSIGNMENT. Neither Party shall assign, charge or transfer this Agreement to a third party without the written consent of the other, which consent shall not unreasonably be withheld or delayed provided always that:

(a) either Party may assign and transfer its right and obligations under this Agreement (in whole but not in part) to any Affiliate without obtaining the prior consent of the other Party provided that the performance by its Affiliate of its obligations hereunder is guaranteed by the assignor and the assignor gives prior written notice to the other of such assignment; and

(b) HERMES may assign and transfer its rights and obligations under this Agreement (in whole but not in part) to any person or entity to whom it transfer all or substantially all of its assets or business relating the Licensed Product.

13.8 NOTICE.

(a) Any notice required to be given under this Agreement shall be in writing and delivered by hand and/or sent by an international courier ("Courier") or facsimile (in the case of facsimile to be confirmed in writing and delivered by hand and/or sent by Courier within four Business Days if being sent by facsimile) to the address as described below:

For HERMES:
Hermes Biosciences, Inc.
61 Airport Boulevard, Suite D
South San Francisco, CA 94080
U.S.A.
Attn: Raymond S. Poon, Ph.D.
Vice President, Business Development
Fax: 650-873-2501
cc: John W. Park, M.D.
President & Chief Executive Officer

For PHARMAENGINE:
PharmaEngine, Inc.
16F, 237, Sung-Chiang Road
Taipei, Taiwan 104
R.O.C.
Attn: Cherry Chen
Senior Director, Business Development
Fax: 886-2-2515-7558
cc: C. Grace Yeh, Ph. D.
President & Chief Executive Officer

(b) A notice shall be deemed to have been served as follows:

(1) if delivered by hand, at the time of delivery;

(2) if delivered by mail, the expiration of four (4) Business Days after the envelope containing the same was delivered into the custody of the Courier service; and

(3) if sent by facsimile, at the expiration of twelve (12) hours after the same was despatched,

except that if a notice or other communication would be deemed to be served under the above provisions on a day that is not a Business Day in the country of receipt or after 5:00 pm in that country, then it shall be deemed instead to have been delivered at 9:00 am on the next Business Day in that country.

13.9 INDEPENDENT CONTRACTORS. Each of the Parties is an independent contractor and not a partner, general agent or employee of the other Party. Nothing contained in the Agreement shall be construed to establish any partnership, joint venture or agency relationship between Parties. Except as may be expressly authorized in writing, neither Party shall, at any time, enter into or incur, or hold itself out to third parties as having authority to enter into or incur on behalf of the other party, any obligations, commitments, expenses or liabilities whatsoever.

13.10 GOVERNING LAW AND JURISDICTION, Any controversy or claim of whatsoever nature arising out of or relating in any manner whatsoever to this Agreement or any breach of any terms of this Agreement shall be governed by and construed in all respects in accordance with the laws of the State of California in the United States of America. Any dispute arising out of or in connection with this Agreement, including any dispute regarding its existing, validity or termination, shall be submitted to final and binding arbitration under the then current rules of the American Arbitration Association. ("AAA"), with a panel of three arbitrators. Such arbitration shall be held in San Francisco, California, USA. Such arbitrators shall be selected by the mutual agreement of the parties or, failing such agreement, shall be selected according to the aforementioned AAA rules. The parties shall bear the costs of the arbitration equally unless the arbitrators, pursuant to their right, but not their obligation, require the non-prevailing party to bear [**]. The arbitrators shall make their decision in accordance with applicable law and the factual evidence presented. The decision of the arbitrators shall be final and may be enforced by the party in whose favor it runs in any court of competent jurisdiction at the option of the successful party. The rights and obligations of the parties to arbitrate any dispute relating to the interpretation or performance of this Agreement or the grounds for the termination thereof shall survive the expiration or termination of this Agreement for any reason. The language of the arbitration shall be English.

13.11 COUNTERPARTS. This Agreement shall be executed in one or more counterparts, each of which shall be deemed an original, and all of which together shall constitute one and same instrument.

13.12 CONSTRUCTION OF AGREEMENT. This Agreement has been prepared jointly and shall not be strictly construed against either Party.

13.13 LANGUAGE. All communications between the Parties regarding this Agreement and activities contemplated hereunder shall be in the English language.

13.14 SURVIVING PROVISIONS. Any termination of this Agreement will not affect the rights and obligations set forth in the following Articles and Paragraphs:

Article 1	Definitions
Paragraph 8.4	Records
Paragraph 9.1	Ownership of Patents
Paragraph 9.2(c)	Prosecution of Patents for Jointly Owned Patent Rights
Article 10	Warranty and Indemnification
Article 11	Confidentiality
Paragraph 12.5	Consequences of Termination
Article 13	Miscellaneous

IN WITNESS WHEREOF, the Parties hereto have set their hand and seal as of the date first above written.

Hermes Biosciences, Inc.	PharmaEngine, Inc.
By: /s/ John W. Park	By: /s/ C. Grace Yeh
Name: John W. Park, M.D.	Name: C. Grace Yeh, Ph.D.
Title: President & Chief Executive Officer	Title: President & Chief Executive Officer
Date: 9/28/05	Date: Sept. 22, 2005

Exhibit A

I. HERMES Patent Rights

[**],

including all divisions, substitutions, continuations, continuations-in-part (to the extent supported by the parent application), reissues, reexaminations, or extensions thereto, foreign and domestic pending patent applications and all priority rights claiming priority thereof, or derived therefrom, in all jurisdictions, including any patents issuing from any of the foregoing.

II. All HERMES' rights or interests in any data, know-how, technology, designs, plans, specifications, prototype devices, improvements, manufacturing know-how, clinical data, research results, and any other intellectual property rights useful in making, using, or selling the Licensed Product, including, but not limited, to the Report from Hermes Biosciences, Inc. to[**].

III. All HERMES' registered and unregistered trade names, trademarks, service marks, trademark registrations, copyrights, copyright registrations and copyright registration applications related to, or used in connection with, any of the foregoing.

AMENDMENT TO LICENSE AGREEMENT

This Amendment (this "Amendment") to the Agreement (as defined below) is made as of this 30th day of June, 2011 (the "Execution Date") with effect from and after May 5, 2011 (the "Amendment Effective Date") by and between Merrimack Pharmaceuticals, Inc., a Delaware corporation ("Merrimack Parent"), and Merrimack Pharmaceuticals (Bermuda) Ltd., a company organized and existing under the laws of Bermuda ("Merrimack Bermuda").

WHEREAS, PharmaEngine, Inc. ("PEI") and Hermes BioSciences, Inc. ("Hermes"), a California corporation that was later acquired by and merged with and into Merrimack Parent, entered into a License Agreement, dated as of September 26, 2005 (the "Agreement"), pursuant to which PEI received a

license under certain intellectual property rights of Hermes to develop and commercialize the Licensed Product (as defined in the Agreement) in the Territory (as defined in the Agreement);

WHEREAS, on May 5, 2011, Merrimack Bermuda entered into an Assignment, Sublicense and Collaboration Agreement ("Assignment Agreement") with PEI, pursuant to which (a) PEI assigned all of its rights, interests and obligations under the Agreement to Merrimack Bermuda, and Merrimack Bermuda assumed all of PEI's obligations under the Agreement, (b) Merrimack Bermuda granted a sublicense back to PEI under certain technology to develop and commercialize the Licensed Product in the Republic of China (Taiwan) and (c) PEI and Merrimack Bermuda agreed to collaborate in the development of the Licensed Product; and

WHEREAS, Merrimack Parent and Merrimack Bermuda desire to amend the Agreement to transfer back to Merrimack Parent the right to develop and commercialize the Licensed Product in certain countries in Asia and in consideration therefor Merrimack Parent will make certain payments to Merrimack Bermuda as provided herein.

NOW, THEREFORE, in consideration of the mutual provisions and covenants contained herein, the receipt and sufficiency of which are hereby acknowledged, Merrimack Parent and Merrimack Bermuda hereby agree as follows:

1. Amendment of the Definition of Territory. Section 1.34 of the Agreement is hereby amended to add the words that are in bold and underlined and delete the words that appear in strikethrough text as follows:

1.34 "**Territory**" shall mean ~~Democratic People's Republic of Korea, Indonesia, Japan, Malaysia, People's Republic of China, Republic of the Philippines, Republic of Korea, Singapore,~~ Taiwan~~, Thailand, Vietnam~~ and ~~all countries in~~ **the** Europe **Territory**~~: including Albania, Austria, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Macedonia, Moldova, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia and Montenegro, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, and Untied Kingdom~~.

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2. Addition of Definitions. Article 1 of the Agreement is hereby amended to add the following definitions:

1.37 "Asia Territory" shall mean Democratic People's Republic of Korea, Indonesia, Japan, Malaysia, People's Republic of China, Republic of the Philippines, Republic of Korea, Singapore, Thailand and Vietnam.

1.38 "Europe Territory" shall mean all countries in Europe, including Albania, Austria, Belarus, Belgium, Bosnia, Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Macedonia, Malta, Moldova, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia and Montenegro, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine and the United Kingdom.

3. Deletion of Right of First Refusal. Section 5.3 of the Agreement is hereby deleted in its entirety.

4. Amendment of Royalty Provision. Section 8.3 of the Agreement is hereby amended to add the words that are in bold and underlined and delete the words that appear in strikethrough text as follows:

8.3 ROYALTIES. PHARMAENGINE shall pay to HERMES ~~the~~ Royalties equal~~s~~ to ~~the sum of~~ [**] percent ([**]%) of the Net Sales of the Licensed Product in **the** Europe **Territory** ~~plus [**] percent ([**]%) of the Net Sales of the Licensed Product in the Territory in Asia~~. **No Royalties shall be due hereunder with respect to Net Sales of the Licensed Product in Taiwan.** PHARMAENGINE shall prepare a statement in respect of each Quarter, which shall show for the Quarter the aggregate Net Sales **for which Royalties are due hereunder**. Such statement shall be submitted to HERMES within [**] days of the end of the Quarter to which it relates together with remittance for the Royalties in respect of such Quarter.

5. Payments from Merrimack Parent to Merrimack Bermuda.

5.1 Merrimack Parent acknowledges that pursuant to the Assignment Agreement, Merrimack Bermuda agreed to pay PEI (a) an upfront amount of [**] dollars ($[**]), (b) certain development and regulatory milestone payments related to the development of the Licensed Product in the Europe Territory and the Asia Territory, (c) sales milestone payments based on Annual Net Sales (as defined in the Assignment Agreement) of the Licensed Product in the Europe Territory and the Asia Territory, (d) tiered royalty payments based on Annual Net Sales of the Licensed Product in the Europe Territory and the Asia Territory and (e) a percentage of Sublicense Revenue (as defined in the Assignment Agreement) based on the licensing or sublicensing of rights to develop and/or commercialize the Licensed Product in the Europe Territory and the Asia Territory.

5.2 In consideration for the transfer by Merrimack Bermuda to Merrimack Parent of rights with respect to the Licensed Product in the Asia Territory as provided herein, Merrimack Parent agrees to make the following payments to Merrimack Bermuda in connection with amounts paid or payable to PEI under the Assignment Agreement that are allocable to the Licensed Product in the Asia Territory:

(a) Upfront Payment. [**] dollars ($[**]) due within [**] days after the Execution Date.

(b) Development and Regulatory Milestones. Merrimack Parent shall pay Merrimack Bermuda the amounts set forth below for achievement of the corresponding event milestones with respect to the Licensed Compound (as defined in the Assignment Agreement) or the Licensed Product:

Development and Regulatory Milestone Events for the Licensed Compound or the Licensed Product	**Dollars**

(i)	[**]	[**]
(ii)	[**]	[**]
(iii)	[**]	[**]
(iv)	[**]	[**]

If the relevant milestone events noted above are first achieved by Merrimack Parent or its licensees or sublicensees (in each case, other than Merrimack Bermuda), Merrimack Parent shall provide notice to Merrimack Bermuda within [**] days after such achievement. If the milestone event noted in 5.2(b)(i) is first achieved by Merrimack Bermuda or its licensees or sublicensees (in each case, other than Merrimack Parent), Merrimack Bermuda shall provide notice to Merrimack Parent within [**] days after such achievement. Merrimack Parent shall make the corresponding payment within [**] days after achievement.

(c) Sales Milestones. Merrimack Parent shall pay Merrimack Bermuda the amounts set forth below upon the first achievement of the corresponding sales milestone by the Licensed Product in the Europe Territory and the Asia Territory:

Sales Milestone Events for the Licensed Product	**Dollars**
Annual Net Sales in the Europe Territory and the Asia Territory for the Licensed Product exceed $[**]	[**]
Annual Net Sales in the Europe Territory and the Asia Territory for the Licensed Product exceed $[**]	[**]
Annual Net Sales in the Europe Territory and the Asia Territory for the Licensed Product exceed $[**]	[**]

For purposes of this Section 5.2(c), Asian Sales Milestone Percentage means the percentage equal to the portion of Annual Net Sales of the Licensed Product in the Asia Territory in the year in which the applicable milestone is achieved, divided by Annual Net Sales of the Licensed Product in both the Europe Territory and the Asia Territory in the year in which the applicable milestone is achieved.

(d) Royalties. As to Annual Net Sales of the Licensed Product, subject to adjustment as set forth below, Merrimack Parent shall pay Merrimack Bermuda royalties during the Royalty Term (as defined in the Assignment Agreement) at the incremental royalty rates set forth below:

Annual Net Sales (in US Dollars) of the Licensed Product in the Europe Territory and the Asia Territory	**Incremental Royalty Rates as a Percentage of Annual Net Sales**
Portion of Annual Net Sales for the Licensed Product in the Europe Territory and the Asia Territory up to and including $[**]	[**]
Portion of Annual Net Sales for the Licensed Product in the Europe Territory and the Asia Territory that is equal to or exceeds $[**], up to and including $[**]	[**]
Portion of Annual Net Sales for the Licensed Product in the Europe Territory and the Asia Territory that is equal to or exceeds $[**], up to and including $[**]	[**]
Portion of Annual Net Sales for the Licensed Product in the Europe Territory and the Asia Territory that is equal to or exceeds $[**]	[**]

The calculation of the Asian Royalty Rate Percentage shall be conducted on a Quarter-by-Quarter basis. For purposes of this Section 5.2(d), Asian Royalty Rate Percentage means the percentage equal to the portion of Annual Net Sales of the Licensed Product in the Asia Territory in the Quarter for which the applicable royalty payment is due, divided by Annual Net Sales of the Licensed Product in both the Europe Territory and the Asia Territory in the Quarter for which the applicable royalty payment is due.

In the event that the royalty rate applicable to Annual Net Sales of the Licensed Product in a country in the Asia Territory is adjusted in accordance with Section 9.4(c) or 9.4(d) of the Assignment Agreement, Merrimack Bermuda shall provide Merrimack Parent notice of such reduction and such reduced royalty rate shall apply to the percentages specified above in

this Section 5.2(d) before applying the Asian Royalty Rate Percentage (i.e., **[**]** %) to the same extent as such reduction applies in the Assignment Agreement.

(e) Sublicense Revenue. Merrimack Parent shall pay to Merrimack Bermuda a portion of all Sublicense Revenue with respect to the Asia Territory as follows:

Sublicense Timeframe	**Portion of Sublicense Revenue to be paid to PEI**
Sublicense agreement executed prior to [**].	[**]
Sublicense agreement executed on or after [**].	[**]
Sublicense agreement executed on or after [**].	[**]

(f) Reports and Payments. Within (i) [**] days after Merrimack Parent receives the royalty statement from Merrimack Bermuda pursuant to Section 8.3 of the Agreement, or (ii) if there are no Net Sales in the Europe Territory during a Quarter, within [**] days after the end of each Quarter during which there are Net Sales or Sublicense Revenue in the Asia Territory giving rise to a payment obligation under Section 5.2(c), (d) or (e), Merrimack Parent shall deliver to Merrimack Bermuda reasonably detailed written accountings of Net Sales of the Licensed Product in the Asia Territory and royalties, sales milestone payments and Sublicense Revenue, if any, due to Merrimack Bermuda for such Quarter. Such quarterly reports shall indicate the Asian Sales Milestone Percentage, Asian Royalty Rate Percentage, gross sales on a country-by-country basis, deductions from gross sales used in calculating Net Sales and the resulting calculation of royalties and sales milestone payments. When Merrimack Parent delivers such accountings to Merrimack Bermuda, Merrimack Parent shall also deliver all royalty, sales milestone and Sublicense Revenue payments due hereunder to Merrimack Bermuda for the Quarter.

6. Payments from Merrimack Bermuda to Merrimack Parent. Within [**] days after the Execution Date, Merrimack Bermuda shall pay to Merrimack Parent [**] dollars ($[**]). Effective upon Merrimack Parent's receipt of such payment, the license grant from Merrimack Parent to Merrimack Bermuda with respect to the Licensed Product in Taiwan shall be deemed a fully paid-up, royalty free license, and Merrimack Bermuda shall have no further obligation to deliver statements under Section 8.3 of the Agreement with respect to Net Sales of the Licensed Product in Taiwan.

7. Miscellaneous. Capitalized terms used herein and not otherwise defined herein shall have the respective meanings set forth in the Agreement, as amended by this Amendment. Except as amended by this Amendment, the Agreement shall be and remain in full force and effect. If there is any conflict or inconsistency between this Amendment and the Agreement, this Amendment shall prevail. The Agreement, as modified by this Amendment, contains the entire agreement between Merrimack Parent and Merrimack Bermuda with respect to the subject matter

contemplated herein and shall not be modified or amended except by a written instrument signed by both parties hereto.

8. Counterparts. This Amendment may be executed in two counterparts, each of which shall be effective as of the Amendment Effective Date, and which shall constitute one and the same instrument. This Amendment shall be deemed executed by the Parties when any one or more counterparts hereof, individually or taken together, bears the signatures of each of Merrimack Parent and Merrimack Bermuda.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, Merrimack Parent and Merrimack Bermuda have caused this Amendment to be executed by their respective authorized representatives as of the Execution Date.

MERRIMACK PHARMACEUTICALS, INC.

By: /s/ William A. Sullivan
William A. Sullivan
Chief Financial Officer

MERRIMACK PHARMACEUTICALS (BERMUDA) LTD.

By: /s/ Jeffrey A. Munsie
Jeffrey A. Munsie
Vice President

Exhibit 10.17

CONFIDENTIAL **EXECUTION COPY**

Confidential Materials omitted and filed separately with the
Securities and Exchange Commission. Asterisks denote omissions.

ASSIGNMENT, SUBLICENSE AND COLLABORATION AGREEMENT

by and between

PHARMAENGINE, INC.

and

MERRIMACK PHARMACEUTICALS (BERMUDA) LTD.

TABLE OF CONTENTS

ASSIGNMENT, SUBLICENSE AND COLLABORATION AGREEMENT

This Assignment, Sublicense and Collaboration Agreement (this "Agreement"), dated the 5th day of May, 2011 (the "Effective Date"), is by and between PharmaEngine, Inc., a company organized and existing under the laws of the Republic of China with its principal offices at 16F, 237, Sung-Chiang Road, Taipei, Taiwan 104, Republic of China ("PEI"), and Merrimack Pharmaceuticals (Bermuda) Ltd., a company organized and existing under the laws of Bermuda with an address of c/o Appleby Services (Bermuda) Ltd., Canon's Court, 22 Victoria Street, Hamilton, HM EX, Bermuda ("MERRIMACK").

INTRODUCTION

1. PEI and Hermes BioSciences, Inc. ("Hermes"), a California corporation that was later acquired by and merged with and into Merrimack Parent (as defined below) prior to the Effective Date, entered into a License Agreement dated September 26, 2005 (the "2005 License Agreement") pursuant to which PEI received a license to develop and commercialize the Licensed Compound and the Licensed Product (each as defined below) in Europe and certain countries in Asia.

2. PEI wishes to assign PEI's rights and obligations under the 2005 License Agreement to MERRIMACK, and MERRIMACK wishes to assume PEI's rights and obligations under the 2005 License Agreement.

3. MERRIMACK and PEI wish to enter into this Agreement pursuant to which MERRIMACK will grant PEI a license under the MERRIMACK Licensed Technology (as defined below) to Develop and Commercialize (each as defined below) the Licensed Compound and the Licensed Product in the PEI Territory (as defined below) and PEI will grant MERRIMACK a license under the PEI Licensed Technology (as defined below) to Develop and Commercialize the Licensed Compound and the Licensed Product outside the PEI Territory.

4. MERRIMACK and PEI will collaborate on certain Development activities related to the Licensed Compound and the Licensed Product on the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the mutual covenants contained herein and other good and valuable consideration, the receipt of which is hereby acknowledged, MERRIMACK and PEI agree as follows:

Article I
Definitions

When used in this Agreement, each of the following terms shall have the meanings set forth in this Article I:

Section 1.1 "Accounting Standards". Accounting Standards means, (a) with regard to MERRIMACK, US generally accepted accounting principles, and (b) with regard to PEI, for matters arising through December 31, 2011, Republic of China accounting standards and for

matters arising after January 1, 2012, international financial reporting standards, in each case as consistently applied.

Section 1.2 "Affiliate". Affiliate means, with respect to a Party, any Person that controls, is controlled by, or is under common control with such Party. For purposes of this Section 1.2, "control" shall refer to (a) in the case of a Person that is a corporate entity, direct or indirect ownership of more than fifty percent (50%) of the stock or shares having the right to vote for the election of directors of such Person, or (b) in the case of a Person that is not a corporate entity, the possession, directly or indirectly, of the power to direct, or cause the direction of, the management or policies of such Person, whether through the ownership of voting securities, by contract or otherwise.

Section 1.3 "Annual Net Sales". Annual Net Sales means aggregate Net Sales of the Licensed Compound or the Licensed Product by MERRIMACK or its Affiliates or sublicensees in the MERRIMACK Territory in any Calendar Year or, with regard to the first and last years of the Term, the portion of such Calendar Year during which this Agreement is in effect.

Section 1.4 "Bankruptcy Code". Bankruptcy Code means 11 U.S.C. §§ 101-1330 of the United States Code, as amended, and similar laws governing bankruptcy and insolvency in countries outside the United States.

Section 1.5 "Business Day". Business Day means a day on which banking institutions in Boston, Massachusetts and Taipei, Taiwan are open for business, excluding any Saturday or Sunday.

Section 1.6 "Calendar Quarter". Calendar Quarter means a calendar quarter ending on the last day of March, June, September or December.

Section 1.7 "Calendar Year". Calendar Year means a period of time commencing on January 1 and ending on the following December 31.

Section 1.8 "Clinical Trial". Clinical Trial means any human clinical trial, including any Phase I Clinical Study, Phase II Clinical Study, Phase III Clinical Study or Phase IV Clinical Study.

Section 1.9 "Commercially Reasonable Efforts". Commercially Reasonable Efforts means, with respect to the performing Party, exerting such efforts and employing such resources on a consistent basis throughout the Term as would normally be exerted or employed by a company of comparable size and resources with expertise in developing similar products for a product of similar market potential, profit potential and strategic value at a similar stage of its product life, taking into account the competitiveness of the relevant marketplace, the patent, intellectual property and development positions of Third Parties, the applicable regulatory situation, the commercial viability of the product and other relevant development and commercialization factors based upon then-prevailing conditions, but excluding from consideration any financial obligations of one Party to the other under this Agreement.

Section 1.10 "Commercialization" or "Commercialize". Commercialization or Commercialize means activities directed to obtaining pricing and reimbursement approvals, marketing, promoting, distributing, importing or selling a product.

Section 1.11 "Confidential Information". Confidential Information means all Know-How or other confidential or proprietary information of a Party that is disclosed (whether in written, graphic, oral, electronic or other form) by or on behalf of such Party to the other Party pursuant to this Agreement, including information regarding a Party's technology, products, business, business plans, financial status, biological substances, chemical substances, formulations, techniques, methodology, equipment, sources of supply and patent positioning.

Section 1.12 "Control" or "Controlled". Control or Controlled means with respect to any Know-How, Patent Right or other intellectual property right, the possession (whether by license (other than pursuant to this Agreement), ownership, control over an Affiliate with such a license or ownership, or otherwise) by a Party of the ability to grant to the other Party access or a license as provided herein without violating the terms of any agreement or arrangement with any Third Party existing before or after the Effective Date; provided, however, that any Know-How or Patent Rights licensed or acquired by a Party after the Effective Date pursuant to an agreement with a Third Party shall be deemed to be Controlled by such Party only if the other Party agrees to assume any financial obligations arising from the sublicensing thereof to such other Party in accordance with Section 4.5.

Section 1.13 "Cover", "Covering" or "Covered". Cover, Covering or Covered means, with respect to a Patent Right, that, but for a license granted to a Party under a Valid Claim included in such Patent Right, the practice, manufacture, use, offer for sale, sale, or importation by such Party of any

invention claimed in such Patent Right would infringe such Valid Claim (or, in the case of a Valid Claim that has not yet issued, would infringe such Valid Claim if it were to issue).

Section 1.14 "CPT-11". CPT-11 means irinotecan, including salts thereof.

Section 1.15 "Development" or "Develop". Development or Develop means non-clinical and clinical research and drug development activities, including toxicology, pharmacology and other discovery efforts, test method development and stability testing, process development, formulation development, delivery system development, quality assurance and quality control development, statistical analysis, preclinical studies, animal studies, Clinical Trials and other clinical studies (including pre- and post-approval studies and investigator sponsored clinical studies), regulatory affairs, and Regulatory Approval and clinical study regulatory activities (excluding regulatory activities directed principally to obtaining pricing and reimbursement approvals).

Section 1.16 "Development Costs". Development Costs means the costs and expenses incurred by or on behalf of a Party attributable to, or reasonably allocable to, the Development of the Licensed Compound or the Licensed Product and that are materially consistent, as applicable, with the Development Plan (including the budget for Development activities included in the Development Plan). Except to the extent such costs are built into the FTE Rate, Development Costs shall not include costs and expenses that are allocable to or in respect of management,

financial, legal or business development personnel. "Development Costs", to the extent covered by the Development Plan, shall include:

(a) the costs of Clinical Trials (including all costs of insurance), the preparation, collation and validation of data from such Clinical Trials and the preparation of medical writing and publishing;

(b) the FTE costs of the relevant Party or its Affiliates with respect to any of the matters specified in clause (a);

(c) all Out-of-Pocket Costs incurred by the Parties or their Affiliates, including payments made to Third Parties with respect to any of the matters specified in clause (a) (except to the extent that such costs have been included in FTE costs);

(d) Regulatory Expenses;

(e) the cost of contract research organizations (CROs); and

(f) the Manufacturing Costs of clinical supplies.

Section 1.17 "Development Plan". Development Plan means the plan for the Development of the Licensed Compound and the Licensed Product in the MERRIMACK Territory and the PEI Territory (other than Development activities conducted by PEI pursuant to Section 4.2(b)(iii)) attached to this Agreement as Exhibit D, as prepared, updated and amended from time to time in accordance with Section 3.1(b), Section 3.2(b), Section 4.1(b), Section 4.2(b) and Section 4.2(c).

Section 1.18 "Development Program". Development Program means the Development activities of the Parties directed to the Licensed Compound and the Licensed Product and undertaken in accordance with the Development Plan.

Section 1.19 "DOH". DOH means the Department of Health, Executive Yuan, R.O.C. or any successor agency thereto having the same or similar functions.

Section 1.20 "EMA". EMA means the European Medicines Agency or any successor agency thereto having the same or similar functions.

Section 1.21 "EU". EU means the European Union, as it may be constituted from time to time.

Section 1.22 "Executive Officers". Executive Officers mean the Chief Executive Officer of MERRIMACK (or a senior executive officer of MERRIMACK designated by the Chief Executive Officer of MERRIMACK) and the Chief Executive Officer of PEI (or a senior executive officer designated by the Chief Executive Officer of PEI).

Section 1.23 "FDA". FDA means the United States Food and Drug Administration or any successor agency thereto having the same or similar functions.

Section 1.24 "Field". Field means all human and veterinary fields of use, including therapeutic, prophylactic, palliative and diagnostic uses in all possible indications.

Section 1.25 "First Commercial Sale". First Commercial Sale means, with respect to the Licensed Product in a given country, the date on which the Licensed Product is first sold following Marketing Authorization of the Licensed Product in such country (or, in a country in which no Marketing Authorization is required, the date on which the Licensed Product is first sold) by, on behalf of or under the authority of MERRIMACK or any of MERRIMACK's Affiliates or sublicensees (other than PEI) in arm's-length transactions to Third Parties (but not including sales relating to transactions among MERRIMACK and MERRIMACK's Affiliates and sublicensees).

Section 1.26 "FTE". FTE means a full time equivalent person year (consisting of a total of [**] hours per year) of scientific or technical work or scientific or technical managerial work on or directly related to activities undertaken by a Party hereunder.

Section 1.27 "FTE Rate". FTE Rate means $[**] per FTE, increased or decreased annually on January 1 of each year, commencing with January 1, 2012, by the percentage increase or decrease in the Consumer Price Index ("CPI") as of the then-most-recent December 31 over the CPI as of

December 31, 2010. As used in this Section 1.27, Consumer Price Index or CPI means the Consumer Price Index — Urban Wage Earners and Clerical Workers, US City Average, All Items, 1982-84 = 100, published by the United States Department of Labor, Bureau of Labor Statistics (or its successor equivalent index).

Section 1.28 "Generic Product". Generic Product means, with respect to the Licensed Product, on a country-by-country basis, a product (a) that contains the Licensed Compound (or equivalent as determined by the relevant Regulatory Authority); and (b) that has received Marketing Authorization in such country through a regulatory approval process by which the sponsor or the regulatory agency references the Licensed Product or relies, in whole or in part, upon the data supporting the Licensed Product and such product is considered a "generic" version of the Licensed Product (including any therapeutically equivalent or substitutable version of the Licensed Product and any extended-release version of the Licensed Product). "Generic Product" shall not include any products sold or authorized for sale by MERRIMACK or its Affiliates or sublicensees, including through the granting of a Right of Reference or Use.

Section 1.29 "IND". IND means an application submitted to a Regulatory Authority to initiate human clinical trials, including (a) an Investigational New Drug application or any successor application or procedure filed with the FDA; (b) any non-US equivalent of a United States Investigational New Drug application; and (c) all supplements and amendments that may be filed with respect to the foregoing.

Section 1.30 "Joint Know-How". Joint Know-How means Know-How that is developed by one or more employees, agents or consultants of PEI (or any of its Affiliates) on the one hand, and one or more employees, agents or consultants of MERRIMACK (or any of its Affiliates), on the other hand, in the performance of activities under this Agreement.

Section 1.31 "Joint Patent Rights". Joint Patent Rights means all Patent Rights that Cover any Joint Know-How.

Section 1.32 "Joint Technology". Joint Technology means the Joint Know-How and Joint Patent Rights.

Section 1.33 "Know-How". Know-How means any technical, scientific and business information, data and materials, including all biological, chemical, pharmacological, toxicological, preclinical, clinical, and assay information, data and materials, analyses, ideas, discoveries, inventions, methods, techniques, improvements, concepts, designs, processes, procedures, compositions, plans, formulae, specifications and trade secrets, whether or not patentable, including documents and other media (including paper, notebooks, books, files, ledgers, records, tapes, discs, diskettes, CD-ROM, trays and containers and any other media developed following the Effective Date) containing or storing any of the foregoing, including all Regulatory Documentation.

Section 1.34 "Laws". Laws means all laws, statutes, rules, regulations, orders, judgments, or ordinances having the effect of law of any federal, national, multinational, state, provincial, county, city or other political subdivision.

Section 1.35 "Licensed Compound". Licensed Compound means (a) the nanoliposomal formulation of CPT-11 known as PEP02 or MM-398, as more fully described on Exhibit A, and (b) any modification to such nanoliposomal formulation of CPT-11.

Section 1.36 "Licensed Know-How". Licensed Know-How means the MERRIMACK Know-How, Joint Know-How and PEI Know-How.

Section 1.37 "Licensed Patent Rights". Licensed Patent Rights means the MERRIMACK Patent Rights, Joint Patent Rights and PEI Patent Rights.

Section 1.38 "Licensed Product". Licensed Product means any pharmaceutical product including or comprising the Licensed Compound as an active ingredient. For purposes of clarity, unless the context otherwise dictates, all references to "Licensed Product" shall include the Licensed Compound contained in the Licensed Product.

Section 1.39 "Licensed Technology". Licensed Technology means the Licensed Patent Rights and Licensed Know-How.

Section 1.40 "Major Asian Country". Major Asian Country means any of the People's Republic of China, Japan, the Republic of Korea or Singapore.

Section 1.41 "Major EU Country". Major EU Country means any of France, Germany, Italy, Spain or the United Kingdom.

Section 1.42 "Manufacturing Costs". Manufacturing Costs means, as to a Party, such Party's direct and identifiable internal and external costs of manufacturing, quality control testing, stability monitoring, re-release, relabeling, packaging and shipment (including insurance) of the Licensed Compound or the Licensed Product, consisting of the following:

(a) with regard to a Party's internal costs, Manufacturing Costs shall consist of all FTE costs of such Party's personnel engaged in manufacturing, quality control testing, stability monitoring, re-release, relabeling, packaging and shipment of the Licensed Compound or the Licensed Product, at the FTE Rate;

(b) with regard to a Party's external costs and charges, Manufacturing Costs shall consist of the Out-of-Pocket Costs of suppliers of goods, including raw materials, and services, including contract manufacturing organizations (CMO), directly related to the manufacture, quality control testing, stability monitoring, re-release, relabeling, packaging and shipment (including insurance) of the Licensed Compound or the Licensed Product; and

(c) import and export duties, value added taxes and other taxes imposed upon and paid directly with respect to the sale or delivery of the Licensed Compound or the Licensed Product.

Section 1.43 "Manufacturing Technology". Manufacturing Technology means Regulatory Documentation and other Know-How that are necessary or useful for a Party (or the Affiliate or Third Party manufacturer identified by such Party) to manufacture the Licensed Compound and Licensed Product, including manufacturing processes, analytical methods, specifications, protocols, assays, batch records, quality control data, transportation and storage requirements, and other manufacturing documentation or files.

Section 1.44 "Marketing Authorization". Marketing Authorization means the authorization issued by the relevant Regulatory Authority (including, where required, any governmental price or reimbursement approvals or inclusion on the official list of reimbursable drugs, as applicable) necessary to commercially market the Licensed Product in any country or regulatory jurisdiction. For clarification, Marketing Authorization does not include the approval or becoming effective of an IND.

Section 1.45 "MERRIMACK Asia Territory". MERRIMACK Asia Territory means Democratic People's Republic of Korea, Indonesia, Japan, Malaysia, People's Republic of China, Republic of the Philippines, Republic of Korea, Singapore, Thailand and Vietnam.

Section 1.46 "MERRIMACK Europe Territory". MERRIMACK Europe Territory means all countries in Europe, including Albania, Austria, Belarus, Belgium, Bosnia, Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Macedonia, Malta, Moldova, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia and Montenegro, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine and the United Kingdom.

Section 1.47 "MERRIMACK Know-How". MERRIMACK Know-How means all Know-How that (a) as of the Effective Date or during the Term is Controlled by MERRIMACK or any of its Affiliates which conduct Development activities related to the Licensed Compound or the Licensed Product; and (b) (i) is reasonably necessary or useful to Develop, manufacture or Commercialize the Licensed Compound or the Licensed Product or (ii) is used by MERRIMACK or any of its Affiliates in the Development, manufacture or Commercialization of

the Licensed Compound or the Licensed Product; provided, however, that MERRIMACK Know-How specifically excludes Joint Know-How. For purposes of clarity, the MERRIMACK Know-How includes Know-How included in the Hermes Intellectual Property (as defined in the 2005 License Agreement).

Section 1.48 "MERRIMACK Licensed Technology". MERRIMACK Licensed Technology means MERRIMACK Know-How and MERRIMACK Patent Rights.

Section 1.49 "Merrimack Parent". Merrimack Parent means Merrimack Pharmaceuticals, Inc., a Delaware corporation with its principal offices at One Kendall Square, Suite B7201, Cambridge, MA 02139-1670, USA.

Section 1.50 "MERRIMACK Patent Rights". MERRIMACK Patent Rights means all Patent Rights that (a) as of the Effective Date and thereafter during the Term are Controlled by MERRIMACK or its Affiliates which conduct Development activities related to the Licensed Compound or the Licensed Product; and (b) Cover any MERRIMACK Know-How or the manufacture, use, offer for sale, sale or importation of the Licensed Compound or the Licensed Product; provided, however, that MERRIMACK Patent Rights specifically excludes Joint Patent Rights. For purposes of clarity, the MERRIMACK Patent Rights include Patent Rights included in the Hermes Intellectual Property (as defined in the 2005 License Agreement).

Section 1.51 "MERRIMACK ROW Territory". MERRIMACK ROW Territory means all areas outside the PEI Territory and the MERRIMACK Territory.

Section 1.52 "MERRIMACK ROW Territory Breach". MERRIMACK ROW Territory Breach means (a) a breach by MERRIMACK of Section 8.4(b), Section 11.1 or Section 11.2, or (b) MERRIMACK's use of PEI Licensed Technology outside the scope of the licenses granted under Section 8.2.

Section 1.53 "MERRIMACK Territory". MERRIMACK Territory means the MERRIMACK Asia Territory and MERRIMACK Europe Territory, but excluding any Terminated Territory.

Section 1.54 "NDA". NDA means an application submitted to a Regulatory Authority for marketing approval of a product, including (a) a New Drug Application or Biologics License Application filed with the FDA, or any successor applications or procedures; (b) any non-US equivalent of a United States New Drug Application or Biologics License Application; and (c) all supplements and amendments that may be filed with respect to the foregoing.

Section 1.55 "Net Sales". Net Sales means, with respect to the Licensed Product, the gross amount invoiced by MERRIMACK, its Affiliates or its sublicensees on sales of the Licensed Product to non-sublicensee Third Party customers in the MERRIMACK Territory, less the following deductions:

(a) Trade, cash or quantity discounts actually allowed and taken directly with respect to such sales, and amounts repaid or credited by reason of rebates, chargebacks and

retroactive price reductions, in each case to the extent such discount, repayment and credit amounts are included in the amount invoiced;

(b) Tariffs, duties, excises, sales taxes or other taxes imposed upon and paid directly with respect to the production, sale, delivery or use of the Licensed Product (excluding taxes based on the income or profits of the selling party), to the extent such amounts are included in the amount invoiced, that are actually borne by the selling party without reimbursement from a Third Party;

(c) Amounts repaid or credited by reason of rejections, defects, recalls or returns or because of refunds;

(d) Price concessions either mandated or negotiated with commercial or governmental payers;

(e) Invoiced amounts that MERRIMACK, its Affiliates or sublicensees write off as uncollectible (provided that the relevant selling party follows commercially reasonable invoicing and collections processes and, if any such written off amounts are subsequently collected, such collected amounts shall thereupon be included in Net Sales); and

(f) Freight, insurance and other transportation charges incurred in shipping the Licensed Product to Third Parties, to the extent such amounts are included in the amount invoiced.

Such amounts shall be determined from the books and records of MERRIMACK, its Affiliates or its sublicensees, as applicable, maintained in accordance with the Accounting Standards that such Person consistently applies in preparing its financial statements. Further, the total, aggregate amount of deductions under paragraphs (b), (c), (e) and (f) above with respect to any Licensed Compound or Licensed Product shall not exceed [**] percent ([**]%) of the selling price. Discounts, repayments, credits and concessions included in deductions under paragraphs (a) and (d) shall be limited to those allowed or granted in good faith by the selling party as part of its Commercialization and pricing strategy for the Licensed Product and that are, in each case, (i) consistent with such selling party's past practice with regard to such Licensed Product and its practice with regard to its other products (to the extent the selling party has established such practices and allowing for commercially reasonable modifications of such practices over time), and (ii) not for the purpose of inducing the purchase or sale of products other than Licensed Products or Licensed Compound.

In the case of any sale of the Licensed Product for consideration other than cash, such as barter or countertrade, Net Sales shall be calculated on average sales price for the Licensed Product in the applicable country in the entire applicable Calendar Year. Notwithstanding the foregoing, Net Sales shall not be imputed to transfers of Licensed Product for use in clinical trials or non-clinical Development activities, for *bona fide* charitable purposes or for compassionate use.

In the event that the Licensed Product is sold as part of a Combination Product (as defined below), the Net Sales from the Combination Product, for the purposes of determining royalty payments, shall be determined by multiplying the Net Sales of the Combination Product during

the applicable royalty reporting period, by the fraction, A/A+B, where A is the average sale price of the Licensed Product when sold separately in finished form, and B is the average sale price of the other product(s) included in the Combination Product when sold separately in finished form, in each case during the applicable royalty reporting period or, if sales of both the Licensed Product and the other product(s) did not occur in such period, then in the most recent royalty reporting period in which sales of both occurred.

In the event that such average sale price cannot be determined for both the Licensed Product and all other products(s) included in the Combination Product, Net Sales for the purposes of determining royalty payments shall be calculated by multiplying the Net Sales of the Combination Product by the fraction of C/C+D where C is the fair market value of the Licensed Product and D is the fair market value of all other pharmaceutical product(s) included in the Combination Product. In such event, MERRIMACK shall in good faith make a determination of the respective fair market values of the Licensed Product and all other pharmaceutical products included in the Combination Product, and shall notify the other Party of such determination and provide the other Party with data to support such determination. The other Party shall have the right to review such determination and supporting data, and to notify MERRIMACK if it disagrees with such determination. If the other Party does not agree with such determination and if the Parties are unable to agree in good faith as to such respective fair market values, then such matter shall be referred to the Executive Officers for resolution pursuant to Section 14.1 and, if the Executive Officers are unable to resolve such matter in accordance with Section 14.1, such matter shall be referred to binding arbitration for resolution pursuant to Section 14.2.

As used above, the term "Combination Product" means any pharmaceutical product that consists of (a) a Licensed Product and (b) one or more active ingredients that are not Licensed Products or a delivery device (whether such elements are combined in a single formulation and/or package, as applicable, or formulated and/or packaged separately but sold together for a single price).

Section 1.56 "Ongoing Clinical Studies". Ongoing Clinical Studies means (a) the Phase II Clinical Study known as [**] sponsored by [**] which is described on Exhibit B-1; (b) the Phase I Clinical Study sponsored by [**], known as [**] which is described on Exhibit B-2; and (c) the Phase II Clinical Study sponsored by [**] known as [**] which is described on Exhibit B-3. All statements regarding the status of the Ongoing Clinical Studies in such Exhibits reflect such status as of the Effective Date only.

Section 1.57 "Out-of-Pocket Costs". Out-of-Pocket Costs means, with respect to certain activities hereunder, direct expenses paid or payable by either Party or its Affiliates to Third Parties (other than employees of such Party or its Affiliates) that are specifically identifiable and incurred to conduct such activities for the Licensed Product and have been recorded in accordance with Accounting Standards normally used by such Party or its Affiliates.

Section 1.58 "Party". Party means MERRIMACK or PEI; "Parties" means MERRIMACK and PEI.

Section 1.59 "Patent Right(s)". Patent Right(s) means each and every patent and patent application in any country in the world, including utility patents, utility models, design patents

and certificates of invention, and all divisionals, continuations, continuations-in-part, substitutions, provisionals, reissues, reexaminations, renewals, extensions (including any supplemental patent certificate) or additions to any such patent applications and patents and all counterparts of any of the foregoing in any country of the world.

Section 1.60 "PEI Know-How". PEI Know-How means all Know-How that (a) as of the Effective Date or during the Term is Controlled by PEI or any of its Affiliates which conduct Development activities related to the Licensed Compound or the Licensed Product; and (b) (i) is reasonably necessary or useful to Develop, manufacture or Commercialize the Licensed Compound or the Licensed Product or (ii) is used by PEI or any of its Affiliates in the Development, manufacture or Commercialization of the Licensed Compound or the Licensed Product; provided, however, that PEI Know-How specifically excludes Joint Know-How. Without limiting the generality of the foregoing, PEI Know-How includes all Know-How invented, discovered or developed by PEI prior to the Effective Date through the practice of the rights licensed to PEI under the 2005 License Agreement.

Section 1.61 "PEI Licensed Technology". PEI Licensed Technology means PEI Know-How and PEI Patent Rights.

Section 1.62 "PEI Patent Rights". PEI Patent Rights means all Patent Rights that (a) as of the Effective Date or during the Term are Controlled by PEI or any of its Affiliates which conduct Development activities related to the Licensed Compound or the Licensed Product; and (b) Cover any PEI Know-How or the manufacture, use, offer for sale, sale or importation of the Licensed Compound or the Licensed Product; provided, however, that PEI Patent Rights specifically excludes Joint Patent Rights.

Section 1.63 "PEI Territory". PEI Territory means Taiwan.

Section 1.64 "Person". Person means any natural person or any corporation, company, partnership, limited liability company, joint venture, firm, agency or other entity, including a Party.

Section 1.65 "Phase I Clinical Study". Phase I Clinical Study means a Clinical Trial of a product, including the initial introduction of such product into humans, that generally meets the requirements of 21 C.F.R. § 312.21(a), as amended (or its successor regulation or comparable laws in countries outside the United States).

Section 1.66 "Phase II Clinical Study". Phase II Clinical Study means a Clinical Trial that generally meets the requirements of 21 C.F.R. § 312.21(b), as amended (or its successor regulation or comparable laws in countries outside the United States) that is intended to support a preliminary determination as to whether a product is safe for its intended use, and to provide preliminary information about such product's efficacy, in order to permit the design of further Clinical Trial(s), including pivotal Phase III Clinical Studies.

Section 1.67 "Phase III Clinical Study". Phase III Clinical Study means, a controlled study in humans of the efficacy and safety of a product, which is prospectively designed to demonstrate statistically whether such product is effective and safe for use in a particular

indication in a manner sufficient to file an NDA to obtain Regulatory Approval to market the product, as further defined in 21 C.F.R. § 312.21(c) (or the non-United States equivalent thereof).

Section 1.68 "Phase IV Clinical Study". Phase IV Clinical Study means a human clinical study initiated in a country for the Licensed Product in an approved indication after receipt of Regulatory Approval for the Licensed Product for such indication in such country.

Section 1.69 "Prosecution and Maintenance" or "Prosecute and Maintain". Prosecution and Maintenance or Prosecute and Maintain means, with regard to a Patent Right, the preparation, filing, prosecution and maintenance of such Patent Right, including re-examinations, reissues, appeals, and requests for patent term adjustments and patent term extensions with respect to such Patent Right, together with the initiation or defense of interferences, the initiation or defense of oppositions and other similar proceedings with respect to the particular Patent Right, and any appeals therefrom. For clarification, "Prosecution and Maintenance" or "Prosecute and Maintain" shall not include any enforcement actions taken with respect to a Patent Right.

Section 1.70 "Regulatory Approval". Regulatory Approval means any and all approvals (including, where required, any applicable governmental price and reimbursement approvals), licenses, registrations or authorizations of any Regulatory Authority necessary for the manufacture, use, storage, import, promotion, marketing and sale of a product in a country or jurisdiction, including Marketing Authorizations. For clarification, Regulatory Approval does not include the approval or becoming effective of an IND.

Section 1.71 "Regulatory Authority". Regulatory Authority means any federal, national, multinational, state, provincial or local regulatory agency, department, bureau or other governmental entity with authority over the testing, approval, manufacture, use, storage, import, promotion, marketing or sale of a product in a country, including the FDA, EMA or DOH.

Section 1.72 "Regulatory Documentation". Regulatory Documentation means, with respect to the Licensed Compound or the Licensed Product, all INDs, NDAs, and other regulatory applications submitted to any Regulatory Authority, copies of Regulatory Approvals, regulatory materials, drug dossiers, master files (including Drug Master Files, as defined in 21 C.F.R. §314.420 and any non-United States equivalents), and any other reports, records, regulatory correspondence, meeting minutes, telephone logs, and other materials relating to Regulatory Approval of the Licensed Compound or the Licensed Product (including any underlying safety and effectiveness data whether or not submitted to any Regulatory Authority), or required to manufacture, distribute or sell the Licensed Product including any information that relates to pharmacology, toxicology, chemistry, manufacturing and controls data, batch records, safety and efficacy, and any safety database required to be maintained for Regulatory Authorities.

Section 1.73 "Regulatory Expenses". Regulatory Expenses means, with respect to the Licensed Compound or the Licensed Product, all FTE costs and Out-of-Pocket Costs incurred by or on behalf of a Party in connection with the preparation and filing of regulatory submissions for the Licensed Compound or the Licensed Product and obtaining of Regulatory Approvals.

Section 1.74 "Right of Reference or Use". Right of Reference or Use means a "Right of Reference or Use" as that term is defined in 21 C.F.R. §314.3(b), and equivalent rights outside the United States.

Section 1.75 "Royalty Term". Royalty Term means, on a country-by-country basis, the period of time beginning on the Effective Date and continuing until the later of (i) ten (10) years after the First Commercial Sale of the Licensed Product in such country, or (ii) May 2, 2024.

Section 1.76 "SEC". SEC means the United States Securities and Exchange Commission.

Section 1.77 "Solid Tumor Indication". Solid Tumor Indication means tumors or cancers of a particular tissue or organ type, regardless of severity or stage and regardless of the frequency or route of administration for which a Marketing Authorization may be filed or received. For example, tumors and cancers of the breast will be considered within the one single "solid tumor indication" of "breast cancer", those of the colorectal region will be

within the one single "solid tumor indication" of "colorectal cancer", those of the stomach will be considered within the one single "solid tumor indication" of "gastric cancer", and so on.

Section 1.78 "Specifications". Specifications means the specifications for the Licensed Product attached hereto as Exhibit C, which specifications may be amended from time to time with the approval of the JMC.

Section 1.79 "Sublicense Revenue". Sublicense Revenue means cash or cash equivalent consideration received by MERRIMACK or an Affiliate of MERRIMACK from a Third Party as consideration for a license or sublicense of rights to Develop and/or Commercialize the Licensed Compound or the Licensed Product in the MERRIMACK Territory; provided, however, that, if MERRIMACK or an Affiliate of MERRIMACK receives compensation in the form of development, regulatory or approval milestone payments based on the same development, regulatory or approval milestones on which the development, regulatory or approval milestone payments payable by MERRIMACK to PEI under this Agreement are based, Sublicense Revenue will include only the portion of such milestone payments in excess of the milestone payments payable by MERRIMACK to PEI under this Agreement based on the same milestones. In addition, Sublicense Revenue shall specifically exclude:

(a) payments or reimbursements for the cost of MERRIMACK's or its Affiliates' research and development efforts for the Licensed Compound or the Licensed Product to be performed after the effective date of the applicable license or sublicense, accounted for at a reasonable and customary FTE rates (any excess over a reasonable and customary FTE rate shall be included in Sublicense Revenue) or in the form of external costs billed through on a pass-through basis with no markup;

(b) royalties and sales milestone payments (or, in the case of a profit sharing deal structure, shares of net profits);

(c) payments to MERRIMACK or its Affiliates of the purchase price of equity securities to the extent not exceeding the fair market value of such securities;

(d) loan proceeds paid to MERRIMACK or its Affiliates by a licensee or sublicensee in arm's length debt financing on non-preferential commercial terms that are, other than amounts forgiven upon or following termination of the applicable licensee's or sublicensee's rights, subject to repayment by MERRIMACK or its Affiliates (any amount of such a loan forgiven by the lender for any reason other than termination of the applicable licensee's or sublicensee's rights shall be included in Sublicense Revenue); and

(e) payment for material supplied by MERRIMACK or its Affiliates, including a reasonable and customary margin on such material (any excess over a reasonable and customary margin is included in Sublicense Revenue).

If MERRIMACK or an Affiliate of MERRIMACK receives consideration from a Third Party for a license or sublicense (x) of rights to Develop and/or Commercialize the Licensed Compound or the Licensed Product in both the MERRIMACK Territory and territories outside the MERRIMACK Territory, and/or (y) of rights to Develop and/or Commercialize the Licensed Compound or the Licensed Product in the MERRIMACK Territory and to Develop and/or Commercialize other compound(s) or product(s), then (1) such consideration shall be reasonably allocated by MERRIMACK between, as applicable, the MERRIMACK Territory and such other territories and/or the Licensed Compound and the Licensed Product and such other compound(s) and product(s), and the portion allocated to the Licensed Compound and the Licensed Product in the MERRIMACK Territory will be the proposed Sublicense Revenue for such Third Party agreement; and (2) MERRIMACK shall promptly notify PEI of, and provide PEI with a copy of, each such agreement with a Third Party, along with an explanation of any allocation with respect to the consideration under such Third Party agreement in accordance with the immediately preceding sentence. If PEI does not agree with MERRIMACK's allocation of such consideration, PEI shall provide MERRIMACK with written notice of PEI's disagreement within [**] days after MERRIMACK notifies PEI of such allocation and PEI and MERRIMACK will negotiate and endeavor to agree in good faith on an allocation within [**] days after the date MERRIMACK receives such written notice. If the Parties agree within such [**] day period, the Parties will use such agreed-upon allocation to determine the Sublicense Revenue for use in the calculation set forth in Section 9.5. If despite good faith efforts the Parties are unable to agree upon such allocation within such [**] day period, then either Party may request that the allocation be determined by arbitration in accordance with Section 14.2, and, if the arbitrators determine that a different allocation is appropriate, the Parties will use the allocation determined by the arbitrators to determine the Sublicense Revenue for use in calculation set forth in Section 9.5.

For avoidance of doubt, (i) the upfront payment required under Section 9.1 is not considered a development, regulatory or approval milestone payment for purposes of this Section 1.79 and any upfront payment received by MERRIMACK or an Affiliate from a Third Party will not be reduced by such upfront payment required under Section 9.1 for purposes of calculating Sublicense Revenue; and (ii) if MERRIMACK or its Affiliate receives any development, regulatory or approval milestone payments based on different development, regulatory or approval milestones than the milestones on which the development, regulatory or approval milestone payments payable by MERRIMACK to PEI under this Agreement are based, the full amount of such milestone payments will be included in Sublicense Revenue.

Section 1.80 "Taiwan". Taiwan means the Republic of China.

Section 1.81 "Terminated Territory". Terminated Territory means, as applicable, (a) with respect to a termination of this Agreement pursuant to Section 13.3 or Section 13.4 that is limited to the MERRIMACK Europe Territory, the MERRIMACK Asia Territory and/or the MERRIMACK ROW Territory, but not all of them, the MERRIMACK Europe Territory, the MERRIMACK Asia Territory and/or the MERRIMACK ROW Territory, as applicable; or (b) with respect to a termination of this Agreement pursuant to Section 13.3 or Section 13.4 that applies to all of the MERRIMACK Europe Territory, the MERRIMACK Asia Territory and the MERRIMACK ROW Territory, all of the MERRIMACK Europe Territory, the MERRIMACK Asia Territory and the MERRIMACK ROW Territory.

Section 1.82 "Terminated Territory Royalty Term". Terminated Territory Royalty Term means, on a country-by-country basis, the period of time beginning on the effective date of the termination of this Agreement with respect to a Terminated Territory and continuing until the expiration of the last Valid Claim of the MERRIMACK Patent Rights or Joint Patent Rights that Cover the manufacture, use, offer for sale, sale or importation of the Licensed Compound or the Licensed Product in such country.

Section 1.83 "Third Party". Third Party means any Person other than a Party or any of its Affiliates.

Section 1.84 "US" or "USA". US or USA means United States of America.

Section 1.85 "Valid Claim". Valid Claim means (a) a claim of an issued patent that has not expired or been abandoned, or been revoked, held invalid or unenforceable by a patent office, court or other governmental agency of competent jurisdiction in a final and non-appealable judgment (or judgment from which no appeal was taken within the allowable time period); or (b) a pending claim within a patent application which claim has not been revoked, cancelled, withdrawn or abandoned; provided that examination has been timely requested for such pending claim and it is otherwise being diligently prosecuted in an effort to have it allowed and granted in an issued patent.

Section 1.86 Additional Definitions. Each of the following definitions is set forth in the section of this Agreement indicated below:

Definitions	Section
1974 Convention	Section 16.1
2005 License Agreement	Preamble
Agreement	Preamble
Arbitration Request	Section 14.2(a)
Biological Materials	Section 4.6(a)
Breaching Party	Section 13.3
Claims	Section 15.1
Clinical Trial Target Date	Section 4.3(a)(ii)(A)
Combination Product	Section 1.55

Definitions	Section
Competitive Infringement	Section 10.3(a)
Effective Date	Preamble
Hermes	Preamble
Indemnified Party	Section 15.3(a)
Indemnifying Party	Section 15.3(a)
JDC	Section 3.2(a)
JMC	Section 3.3(a)
JSC	Section 3.1(a)
LCIA	Section 14.2(c)
Licensed Compound Information	Section 4.2(d)(i)
Licensing Party	Section 4.5
Losses	Section 15.1
MERRIMACK	Preamble
MERRIMACK Invalidity Claim	Section 10.5(a)
Non-Arbitrable Dispute	Section 14.1(b)
Non-Breaching Party	Section 13.3
PEI	Preamble
PEI Invalidity Claim	Section 10.5(b)
SDEA	Section 5.6
Severed Clause	Section 16.14
Step-In Patent Rights	Section 10.2(b)
Term	Section 13.1

Article II

Assignment and Assumption of the 2005 License Agreement

Section 2.1 Assignment of the 2005 License Agreement. PEI hereby assigns and transfers to MERRIMACK all of PEI's rights and obligations under the 2005 License Agreement. PEI is released from all obligations, commitments and liabilities to be performed by PEI under the 2005 License Agreement before or after the Effective Date; except that, PEI will remain liable in accordance with the terms of Section 10.9 of the 2005 License Agreement for any Third Party claims against Merrimack Parent that relate to matters that occurred prior to the Effective Date; provided that PEI's liability for any such Third Party Claims relating to any Ongoing Clinical Study will be limited to the insurance available to PEI to cover such claims. Nothing in this Article II constitutes an assignment of any PEI Know-How or PEI Patent Rights.

Section 2.2 Assumption of the 2005 License Agreement. Effective as of the Effective Date, MERRIMACK hereby (a) assumes and agrees to pay, perform and discharge when due all of the obligations, commitments and liabilities of PEI to be performed under the 2005 License Agreement on or after the Effective Date; (b) agrees to be bound in all respects by the 2005 License Agreement; and (c) agrees that, subject to the second sentence of Section 2.1, PEI is no longer bound by the 2005 License Agreement and that all of PEI's rights and obligations with regard to the portion of the MERRIMACK Licensed Technology that is covered by the 2005 License Agreement are as set forth in this Agreement. Without limiting the generality of the

foregoing, MERRIMACK agrees that MERRIMACK will be solely liable to MERRIMACK Parent for any payments due under the 2005 License Agreement as a result of activities of PEI, its Affiliates or its sublicensees under this Agreement.

Article III

Section 3.1 Joint Steering Committee.

(a) Formation and Membership. Within [**] days after the Effective Date, MERRIMACK and PEI shall establish a joint steering committee (the "JSC") to review, coordinate and provide overall strategic direction to their activities pursuant to the Development Plan. The JSC shall be comprised of [**] representatives of MERRIMACK and [**] representatives of PEI with appropriate experience and level of decision-making authority. Each Party may change any one or more of its representatives on the JSC at any time upon written notice to the other Party. From time to time, the JSC may, in its discretion, establish one or more subcommittees or project teams to oversee particular projects or activities, as the JSC deems necessary or advisable.

(b) Responsibilities. The JSC shall be responsible for:

(i) reviewing and approving changes to the initial Development Plan attached to the Agreement as Exhibit D recommended by the JDC, including all budgets relating to Development activities to be conducted by PEI hereunder;

(ii) periodically reviewing the Development Plan and suggesting or approving such updates or amendments to the Development Plan, including updates or amendments recommended by the JDC, as the JSC deems appropriate, including all budget amendments;

(iii) providing overall strategic direction with respect to Development activities conducted under the Development Plan;

(iv) overseeing the JDC, JMC and any subcommittees and the Parties' progress in the conduct of activities under the Development Plan hereunder;

(v) attempting to resolve disputes arising under this Agreement at the JSC or that are referred to the JSC by the JDC, JMC and any subcommittees or either of the Parties (for clarity, the JSC shall not have the authority to resolve disputes between the Parties regarding whether a Party has fulfilled or breached any obligation under this Agreement); and

(vi) performing such other tasks and undertaking such other responsibilities as may be set forth in this Agreement.

(c) Administrative Matters. The JSC shall appoint a chairperson from among its members, who shall be from MERRIMACK. The chairperson shall be responsible for calling meetings of the JSC and for leading the meetings. A JSC member of MERRIMACK shall serve

as secretary of such meetings. The secretary shall prepare and distribute to all members of the JSC draft minutes of the meeting for review and comment, including a list of any actions or decisions approved by the JSC, with the goal of distributing final approved minutes of each JSC meeting within thirty (30) days after the meeting.

(d) Decision-Making. Each Party shall have one (1) vote on the JSC. Both Parties must vote in the affirmative to allow the JSC to take any action that requires the approval of the JSC. Decisions on any matter may be taken at a meeting, by teleconference, videoconference or by written agreement. The chairperson may convene a special meeting of the JSC in accordance with Section 3.1(f)(iii) for the purpose of resolving any disagreement at the JDC level or, if applicable, JMC level, or other disputes within the JSC's jurisdiction, in case any of the foregoing represents a material issue the resolution of which cannot reasonably await until the next scheduled meeting of the JSC. Notwithstanding the foregoing, provided that a meeting is called with at least [**] days prior notice, if one Party's representatives fail to attend such meeting, the representatives of the Party attending such meeting shall have the right to decide any matters presented at such meeting.

(e) Dispute Resolution by Executive Officers. If the JSC is unable to resolve any dispute within the responsibilities of the JSC specified in Section 3.1(b), or to unanimously agree on any matter set forth in clause (iii) below, within [**] days after one Party notifies the other Party in writing of a dispute, such dispute or other matter shall be referred to the Executive Officers for resolution pursuant to Section 14.1. If the Executive Officers are unable to resolve any such matter that is within the responsibilities of the JSC pursuant to Section 14.1 then MERRIMACK shall have final decision-making authority with respect to all matters related to the (x) Development of the Licensed Compound or the Licensed Product and (y) Commercialization of the Licensed Compound or the Licensed Product outside the PEI Territory, provided that:

(i) MERRIMACK may not exercise its final decision-making authority to make a decision that [**] with the terms and conditions of this Agreement;

(ii) MERRIMACK may not exercise its final decision-making authority to make any decision regarding [**].

(iii) the following decisions must be decided [**], and MERRIMACK shall [**]:

(A) [**];

(B) resolve disputes regarding the Parties' rights and obligations under this Agreement;

(C) [**] make a decision that is expressly stated in this Agreement to require [**] prior approval or consent, or the mutual agreement of the Parties; or

(D) otherwise expand [**] rights or reduce [**] obligations under this Agreement in connection with the Licensed Compound or the Licensed Product.

For clarity, if any of the matters in the foregoing clauses (A)-(D) are not decided [**], they shall be resolved as provided in Article XIV.

(f) Meetings.

(i) The JSC shall meet at least twice annually. The location of JSC meetings shall be as determined by the chairperson, and may be held in person, alternating locations between the Parties, or by telephone conference call or by videoconference.

(ii) Each Party shall use reasonable efforts to cause its representatives to attend the meetings of the JSC. In addition, each Party may, with the prior consent of the chairperson, invite a reasonable number of non-voting employees or officers, consultants or scientific advisors, to attend meetings of the JSC or the relevant portion thereof; provided that any such consultants or scientific advisors are bound by written obligations of confidentiality that are at least as stringent as those set forth in this Agreement.

(iii) The chairperson may also call a special meeting of the JSC for the purpose of resolving disputes in connection with, or for the purpose of reviewing or making a decision pertaining to, any material matter within the purview of the JSC, the examination or resolution of which cannot reasonably be postponed until the next scheduled JSC meeting, by providing written notice to the Parties. Such meeting shall be convened at such time as may be mutually agreed upon by the Parties, but in any event shall be held within [**] days after the date of such notice.

(iv) PEI may also call a special meeting of the JSC for the purpose of resolving disputes in connection with, or for the purpose of reviewing or making a decision pertaining to, any material matter within the purview of the JSC, the examination or resolution of which cannot reasonably be postponed until the next scheduled JSC meeting, by providing written notice to the Parties. Such meeting shall be convened at such time as may be mutually agreed upon by the Parties, but in any event shall be held within [**] days after the date of such notice.

Section 3.2 Joint Development Committee.

(a) Formation and Membership. Within [**] days after the Effective Date, MERRIMACK and PEI shall establish a joint development committee (the "JDC"). The JDC shall be comprised of [**] representatives of MERRIMACK and [**] representatives of PEI, each of whom shall have appropriate experience and level of decision-making authority. Each Party may change any one or more of its representatives on the JDC at any time upon written notice to the other Party. From time to time, the JDC may, in its discretion, establish one or more project teams, to, upon mutual agreement of the Parties, implement and coordinate various aspects of the Development Plan or other elements of the collaboration hereunder, such as coordination of patent prosecution or enforcement matters as contemplated in Article X.

(b) Responsibilities. The JDC shall be responsible for:

(i) reviewing, and recommending to the JSC for JSC review and approval, as appropriate, changes, updates and amendments to the initial Development Plan attached to this Agreement as Exhibit D, in each case as prepared in accordance with Section 4.1(b);

(ii) providing strategic direction with respect to non-clinical, clinical and manufacturing activities for the Licensed Compound and the Licensed Product;

(iii) overseeing the Development of the Licensed Compound and the Licensed Product in accordance with the Development Plan;

(iv) overseeing the progress of the Development Program and monitoring the Parties' compliance with their respective obligations under the Development Plan, including the accomplishment of key objectives and reviewing, approving, providing strategic direction to and overseeing Development activities conducted by PEI pursuant to the Development Plan;

(v) reviewing protocols of Clinical Trials to be conducted by PEI in accordance with Section 4.2(b)(iii);

(vi) discussing, reviewing and approving a joint publication strategy with respect to the publication of results of Clinical Trials conducted by the Parties with respect to the Licensed Compound and the Licensed Product; and

(vii) performing such other tasks and undertaking such other responsibilities as may be set forth in this Agreement.

(c) Administrative Matters. The JDC shall appoint a chairperson from among its members, who shall be from MERRIMACK. The chairperson shall be responsible for calling meetings of the JDC and for leading the meetings. A JDC member of MERRIMACK shall serve as secretary of such meetings. The secretary shall prepare and distribute to all members of the JDC draft minutes of the meeting for review and comment, including a list of any actions or decisions approved by the JDC, with the goal of distributing final approved minutes of each JDC meeting within thirty (30) days after the meeting.

(d) Decision-Making. Each Party shall have one (1) vote on the JDC. Both Parties must vote in the affirmative to allow the JDC to take any action that requires the approval of the JDC. Decisions on any matter may be taken at a meeting, by teleconference or videoconference or by written agreement. If the JDC is unable to reach unanimous agreement on any matter within the JDC's jurisdiction, then the matter shall be referred to the JSC for resolution in accordance with Section 3.1(b)(v) (subject to Section 3.1(e) and MERRIMACK's final decision-making authority as to matters covered thereunder). Notwithstanding the foregoing, provided that a meeting is called with at least [**] days prior notice, if one Party's representatives fail to attend such meeting, the representatives of the Party attending such meeting shall have the right to decide any matters presented at such meeting.

(e) Meetings.

(i) Prior to the first dosing of the first subject in the first Phase III Clinical Study for the Licensed Compound, the JDC shall meet at least [**]. Thereafter, the JDC shall meet at least [**]. The location of JDC meetings shall be as determined by the chairperson, and may be held in person, alternating locations between the Parties, or by telephone conference call or by videoconference.

(ii) Each Party shall use reasonable efforts to cause its representatives to attend the meetings of the JDC. If a Party's representative is unable to attend a meeting, such Party may designate an alternate representative to attend such meeting in place of the absent representative. In addition, each Party may, with the prior consent of the chairperson, invite a reasonable number of additional employees, consultants or scientific advisors, to attend the meetings of the JDC or the relevant portion thereof, provided that any such consultants or scientific advisors are bound by written obligations of confidentiality that are at least as stringent as those set forth in this Agreement.

(iii) The chairperson may also call a special meeting of the JDC for the purpose of resolving material disputes in connection with, or for the purpose of reviewing or making a material decision pertaining to, the implementation of the Development Plan, the examination or resolution of which cannot reasonably be postponed until the next scheduled JDC meeting, by providing written notice to the Parties. Such meeting shall be convened at such time as may be mutually agreed upon by the Parties, but in any event shall be held within [**] days after the date of such notice.

(iv) PEI may also call a special meeting of the JDC for the purpose of resolving disputes in connection with, or for the purpose of reviewing or making a decision pertaining to, any material matter within the purview of the JDC, the examination or resolution of which cannot reasonably be postponed until the next scheduled JDC meeting, by providing written notice to the Parties. Such meeting shall be convened at such time as may be mutually agreed upon by the Parties, but in any event shall be held within [**] days after the date of such notice.

Section 3.3 Joint Manufacturing Committee.

(a) Formation and Membership. Within [**] days after the Effective Date, MERRIMACK and PEI shall establish a joint manufacturing committee (the "JMC"). The JMC shall be comprised of [**] representatives of MERRIMACK and [**] representatives of PEI, each of whom shall have appropriate experience and level of decision-making authority. Each Party may change any one or more of its representatives on the JMC at any time upon written notice to the other Party. From time to time, the JMC may, in its discretion, establish one or more project teams, to, upon mutual agreement of the Parties, implement and coordinate various aspects of the Manufacturing Technology transfer and such other matters within the JMC's purview.

(b) Responsibilities. The JMC shall be responsible for:

(i) overseeing and advising on the pre-clinical and clinical manufacture of the Licensed Compound and the Licensed Product;

(ii) overseeing the transfer of manufacturing responsibility from PEI to MERRIMACK under Section 6.1;

(iii) to the extent agreed by the Parties pursuant to Section 7.2, coordinating manufacture of the Licensed Product for Commercialization, including monitoring logistical strategies, capacity planning and inventory levels for the Licensed Product for Commercialization by PEI in the PEI Territory and by MERRIMACK outside the PEI Territory; and

(iv) providing a forum for the Parties to discuss any material quality-related issues concerning the Licensed Product.

(c) Administrative Matters. The JMC shall appoint a chairperson from among its members, who shall be a representative of MERRIMACK. The chairperson shall be responsible for calling meetings of the JMC and for leading the meetings. A JMC member of MERRIMACK shall serve as secretary of such meetings. The secretary shall prepare and distribute to all members of the JMC draft minutes of the meeting for review and comment, including a list of any actions or decisions approved by the JMC, with the goal of distributing final approved minutes of each JMC meeting within thirty (30) days after the meeting.

(d) Decision-Making. Each Party shall have one (1) vote on the JMC. Both Parties must vote in the affirmative to allow the JMC to take any action that requires the approval of the JMC. Decisions on any matter may be taken at a meeting, by teleconference or videoconference or by written agreement. If the JMC is unable to reach unanimous agreement on any matter within the JMC's jurisdiction, then the matter shall be referred to the JSC for resolution in accordance with Section 3.1(b)(v) (subject to Section 3.1(e) and MERRIMACK's final decision-making authority as to matters covered thereunder). Notwithstanding the foregoing, provided that a meeting is called with at least [**] days prior notice, if one Party's representatives fail to attend such meeting, the representatives of the Party attending such meeting shall have the right to decide any matters presented at such meeting.

(e) Meetings.

(i) The JMC shall meet at least [**] during each Calendar Quarter. The location of JMC meetings shall be determined by the chairperson, and may be held in person, alternating locations between the Parties, or by telephone conference call or by videoconference.

(ii) Each Party shall use reasonable efforts to cause its representatives to attend the meetings of the JMC. If a Party's representative is unable to attend a meeting, such Party may designate an alternate representative to attend such meeting in place of the absent representative. In addition, each Party may, at its discretion, invite a reasonable number of additional employees, and, with the consent of the other Party, consultants or scientific advisors, to attend the meetings of the JMC or the relevant portion thereof, provided that any such

consultants or scientific advisors are bound by written obligations of confidentiality that are at least as stringent as those set forth in this Agreement.

(iii) The chairperson may also call a special meeting of the JMC for the purpose of resolving material disputes in connection with, or for the purpose of reviewing or making a material decision pertaining to, the manufacture of the Licensed Compound and/or the Licensed Product, the examination or resolution of which cannot reasonably be postponed until the next scheduled JMC meeting, by providing written notice to the Parties. Such

meeting shall be convened at such time as may be mutually agreed upon by the Parties, but in any event shall be held within [**] days after the date of such notice.

(iv) PEI may also call a special meeting of the JMC for the purpose of resolving disputes in connection with, or for the purpose of reviewing or making a decision pertaining to, any material matter within the purview of the JMC, the examination or resolution of which cannot reasonably be postponed until the next scheduled JMC meeting, by providing written notice to the Parties. Such meeting shall be convened at such time as may be mutually agreed upon by the Parties, but in any event shall be held within [**]) days after the date of such notice.

Article IV

Development

Section 4.1 Overview; Development Plan.

(a) From and after the Effective Date, MERRIMACK shall, except as provided in Section 4.2, be responsible for Development of the Licensed Compound and the Licensed Product, including all costs and expenses relating thereto.

(b) Subject to and in accordance with the terms and conditions of this Agreement, including Section 4.2, the Parties shall collaborate on the Development of the Licensed Compound and the Licensed Product in accordance with the Development Plan. The initial Development Plan agreed to by the Parties is attached to this Agreement as Exhibit D and updates and amendments to such initial Development Plan, shall be prepared by MERRIMACK, in consultation with PEI, shall be reviewed and approved by the JDC and JSC, shall be consistent with the terms and conditions of this Agreement and shall specify, among other things:

(i) Development objectives;

(ii) activities to be performed, including all Clinical Trials and Regulatory Approvals required for Commercializing the Licensed Product in the MERRIMACK Territory and PEI Territory;

(iii) the Party responsible for performance of an activity (provided that, except with respect to the Ongoing Clinical Studies, PEI shall only be assigned Development activities with the mutual agreement of the Parties);

(iv) associated budgets for the Development activities to be conducted by MERRIMACK and PEI;

(v) timelines for performance; and

(vi) specific deliverables.

(c) Each Party shall use Commercially Reasonable Efforts to perform its respective obligations under the Development Plan in accordance with the Development Plan and all applicable Laws.

(d) MERRIMACK shall be responsible for all costs of conducting the Development Program after the Effective Date (other than any activities conducted by PEI in accordance with Section 4.2(b)(iii)), including Manufacturing Costs, and shall pay PEI in accordance with Section 9.9 for Development Costs incurred by PEI in performing activities assigned to PEI under the Development Plan; provided the amounts involved are within the budget in the Development Plan for such activities.

Section 4.2 Certain Development Responsibilities of PEI.

(a) Ongoing Clinical Studies. The Parties acknowledge and agree that (i) PEI shall be responsible for continuing to manage, and shall use Commercially Reasonable Efforts to complete, the Ongoing Clinical Studies in accordance with the Development Plan; and (ii) MERRIMACK shall bear the Development Costs associated with the conduct of the Ongoing Clinical Studies incurred after the Effective Date in accordance with Section 4.1(d).

(b) Development Activities in the PEI Territory.

(i) If (A) the Development Plan includes any Development activity(ies) to be conducted in the PEI Territory for the Development of the Licensed Compound or the Licensed Product and (B) the JSC reasonably determines in good faith that PEI has the necessary [**] to conduct such planned activity(ies), MERRIMACK shall provide written notice to PEI of such planned activity(ies), which notice shall include a description of such planned activity(ies) and associated budget, timeline and objectives. PEI shall have the option to conduct such Development activity(ies), under the direction of the JDC, by providing written notice to MERRIMACK within [**] days after receipt of the notice from MERRIMACK regarding such activity(ies). If PEI elects to conduct such Development activity(ies), the Development Plan shall be updated to reflect PEI's responsibility for such activity(ies) and PEI shall perform such Development activity(ies) in accordance with the associated budget and shall use Commercially Reasonable Efforts to achieve the timelines and objectives for such Development activity(ies).

(ii) If (A) the Development Plan includes any Development activity(ies) in the PEI Territory for the Development of the Licensed Compound or the Licensed Product and (B) either (1) the JSC reasonably determines in good faith that PEI [**] to conduct such activity(ies), or (2) PEI has declined to undertake such activity(ies) in accordance with Section 4.2(b)(i), MERRIMACK may assume responsibility for such activity(ies).

(iii) In the event that PEI identifies any Development activity(ies) that is(are) required for Regulatory Approval of the Licensed Product in the PEI Territory and such activity(ies) is(are) not otherwise included in the Development Plan, PEI shall promptly notify the JDC of such activity(ies). PEI shall have the right to conduct such activity(ies) subject to the JDC's review of protocols for Clinical Trials, at PEI's sole cost and expense.

(c) Mutually Agreed Development Activities. From time to time during the Term, the Parties may mutually agree to amend the Development Plan to include additional Development activities to be conducted by PEI, including the conduct of certain Phase I Clinical Studies, Phase II Clinical Studies or aspects or tasks associated with Phase III Clinical Studies.

(d) Information Transfer.

(i) As soon as practicable after the Effective Date, but in no case later than [**] days after the Effective Date, to the extent not previously disclosed to the other Party, each Party shall disclose to the other Party all non-clinical and clinical data (including all data from interim reviews, all source documents, and all case report forms and tabulations), internal and external reports, and all other Regulatory Documentation (the "Licensed Compound Information") Controlled by such Party or its Affiliates (including, in MERRIMACK's case, Merrimack Parent as successor to Hermes) and generated in the course of any Development activities conducted by such Party or its Affiliates (including, in MERRIMACK's case, Merrimack Parent as successor to Hermes) pursuant to the 2005 License Agreement, and all Manufacturing Technology Controlled by such Party or its Affiliates (including, in MERRIMACK's case, Merrimack Parent as successor to Hermes) and generated in the course of any manufacturing conducted by such Party or its Affiliates pursuant to the 2005 License Agreement. In addition, each Party shall disclose to the other Party Licensed Compound Information and Manufacturing Technology Controlled by such Party and generated in the course of Development and manufacturing activities conducted by such Party, as required by Section 4.4, Section 5.1, Section 6.1 and Section 6.2.

(ii) PEI hereby assigns and transfers to MERRIMACK a one-half, undivided ownership interest in and to all Licensed Compound Information and Manufacturing Technology, excluding Regulatory Documentation (which is addressed in Section 5.1), Controlled by PEI and generated by PEI prior to the Effective Date or following the Effective Date pursuant to this Agreement. Notwithstanding such co-ownership, MERRIMACK agrees that such Licensed Compound Information and Manufacturing Technology will be treated for all purposes under this Agreement as PEI Licensed Technology and MERRIMACK shall have the right to use, copy, practice, license and otherwise exploit such Licensed Compound Information and Manufacturing Technology solely (A) in connection with the Licensed Compound and the Licensed Product; and (B) to the same extent that MERRIMACK would be permitted to use, copy, practice, license and otherwise exploit such Licensed Compound Information and Manufacturing Technology under Section 8.2 if such Licensed Compound Information and Manufacturing Technology were not co-owned by MERRIMACK and were only part of the PEI Licensed Technology licensed to MERRIMACK under such Section 8.2.

(iii) In addition, whether or not Licensed Compound Information and Manufacturing Technology can be assigned and transferred to MERRIMACK as provided in clause (ii) above:

(A) PEI hereby grants to MERRIMACK a Right of Reference or Use outside the PEI Territory to any and all such Licensed Compound Information and Manufacturing Technology, and agrees to sign, and cause its Affiliates to sign, any instruments reasonably requested by MERRIMACK in order to further effect such grant;

(B) MERRIMACK hereby grants to PEI a Right of Reference or Use in the PEI Territory to any and all such Licensed Compound Information and Manufacturing Technology, and agrees to sign, and cause its Affiliates to sign, any instruments reasonably requested by PEI in order to further effect such grant; and

(C) Each Party shall permit any relevant Regulatory Authority to inspect such Licensed Compound Information and Manufacturing Technology upon reasonable notice to such Party. Each Party shall also permit the other Party, upon reasonable notice, during regular business hours, to inspect any such Licensed Compound Information and Manufacturing Technology; provided that, the Party conducting such inspection shall use reasonable efforts to limit such inspections by such Party to a moderate frequency reasonably necessary or desirable in order to facilitate such Party's Development and Commercialization of the Licensed Compound and Licensed Product. As of the Effective Date, neither Party anticipates that such Party would require more than [**] of such inspections in a Calendar Year.

Section 4.3 Diligence Obligations.

(a) MERRIMACK Diligence Obligations.

(i) MERRIMACK, together with its Affiliates, licensees and sublicensees, shall use Commercially Reasonable Efforts to Develop (including obtaining necessary Regulatory Approvals), and, upon receipt of Regulatory Approval in the applicable territory, to Commercialize the Licensed Product in at least [**].

(ii) Without limiting the foregoing, MERRIMACK, together with its Affiliates, licensees and sublicensees, shall use Commercially Reasonable Efforts to:

(A) dose the first subject in a Phase III Clinical Study of the Licensed Compound in a Solid Tumor Indication by the later of (x) [**], or (y) [**] months after the Effective Date (the "Clinical Trial Target Date"); and

(B) dose the first subject in a Phase III Clinical Study of the Licensed Compound in a Solid Tumor Indication (other than the Solid Tumor Indication described in Section 4.3(a)(ii)(A)), which has, in MERRIMACK's good faith judgment, [**], within [**] months after the Effective Date;

provided as to each of clauses (A) and (B) above, that (1) the protocol for such Clinical Trial is approved by the relevant Regulatory Authority and Institutional Review Board; (2) there are no

delays caused by a Regulatory Authority (including by imposition of a clinical hold or otherwise); and (3) there are no other factors that cause a delay that could not have been reasonably avoided by MERRIMACK; provided that, if any of the factors listed in clauses (1) through (3) of this paragraph cause a delay, MERRIMACK's obligations under this Section 4.3(a)(ii) will be postponed only for the period of such delay.

(iii) Without limiting the generality of the foregoing, and in addition to the requirements of Section 4.3(a)(ii):

(A) if MERRIMACK, together with its Affiliates, licensees and sublicensees, does not achieve the dosing of first subjects in the Phase III Clinical Studies described in Section 4.3(a)(ii)(A) and/or Section 4.3(a)(ii)(B), the following shall, subject to Section 4.3(a)(iii)(B) below, apply:

(1) if MERRIMACK has not dosed the first subject in a Phase III Clinical Study as set forth in Section 4.3(a)(ii)(A) on or before the Clinical Trial Target Date, then (x) MERRIMACK shall pay to PEI [**] on or before the date [**] days after the Clinical Trial Target Date (and no further payments under Section 9.2(a)(i) shall be due) and (y) the JDC will promptly meet in order to review the cause of the delay and discuss proposals and implement actions to mitigate such delay;

(2) if MERRIMACK has not dosed the first subject in a Phase III Clinical Study as set forth in Section 4.3(a)(ii)(A) on or before the date [**] months after the Clinical Trial Target Date (without any adjustment of the Clinical Trial Target Date under Section 4.3(a)(iii)(B)) then MERRIMACK shall, at MERRIMACK's option, on or before the date [**] days after such date, either (x) make a payment of [**] US Dollars ($[**]) to PEI, which amount if so paid by MERRIMACK shall be fully creditable against the next milestone payment that becomes due to PEI pursuant to Section 9.2 (other than the milestone payment set forth in Section 9.2(a)(i), which shall have previously been satisfied pursuant to Section 4.3(a)(iii)(A)(1)) or (y) terminate this Agreement in accordance with Section 13.4 (in which case the limitation in Section 13.4 restricting the exercise of such termination right prior to the [**] anniversary of the Effective Date shall not apply). In the event that MERRIMACK does not terminate this Agreement as provided in clause (y), the JDC will promptly meet in order to review the cause of the delay and discuss proposals and implement actions to mitigate such delay; and

(3) if MERRIMACK has not dosed the first subject in a Phase III Clinical Study as set forth in Section 4.3(a)(ii)(B) on or before the date [**] months after the Effective Date, the JDC will promptly meet in order to review the cause of the delay and discuss proposals and implement actions to mitigate such delay.

(B) If on the Clinical Trial Target Date or the date that falls [**] months after the Clinical Trial Target Date (without any adjustment of the Clinical Trial Target Date under this Section 4.3(a)(iii)(B)), as applicable, MERRIMACK, together with its Affiliates, licensees and sublicensees cannot dose the first subject in a Phase III Clinical Study as set forth in Section 4.3(a)(ii)(A) because (1) the protocol for such Clinical Trial was rejected by the relevant Regulatory Authority or Institutional Review Board prior to the applicable date, or

(2) there are other delays caused by a Regulatory Authority (including the imposition of a clinical hold), then the applicable date will be extended for the duration of such delay and the payment obligations set forth in Sections 4.3(a)(iii)(A)(1) and 4.3(a)(iii)(A)(2) shall not apply as long as (x) MERRIMACK, together with its Affiliates, licensees and sublicensees continues to work promptly and diligently to remove the cause of such delay, and (y) MERRIMACK, its Affiliates, licensees or sublicensees doses the first subject in a Phase III Clinical Study as set forth in Section 4.3(a)(ii)(A) as soon as practicable after such delay is removed. Except as expressly provided in this Section 4.3(a)(iii)(B), MERRIMACK's obligation to pay amounts required under this Section 4.3(a)(iii) may not be delayed, including as a result of any matter covered by Section 16.6 or any matter covered by clause (3) of the last paragraph of Section 4.3(a). Nothing in this Section 4.3(a)(iii) will limit in any way PEI's remedy for failure of MERRIMACK to exercise Commercially Reasonable Efforts to fulfill any of MERRIMACK's obligations under this Section 4.3(a). All payments required under this Section 4.3(a)(iii) will be non-refundable.

(b) PEI Diligence Obligations. PEI shall use Commercially Reasonable Efforts to Develop (including to obtain necessary Regulatory Approvals), and, upon receipt of such Regulatory Approvals, to Commercialize the Licensed Product in the PEI Territory.

Section 4.4 Development Reports; Information Sharing.

(a) Development Reports. Each Party shall provide the JDC with a written report at least [**] summarizing in reasonable detail (i) the activities conducted by such Party under the Development Plan; (ii) with respect to PEI, activities conducted by PEI pursuant to Section 4.2(b)(iii); and (iii) such Party's and its Affiliates' activities and progress related to the Development pursuant to this Agreement of the Licensed Compound and Licensed Product, including information concerning the conduct of non-clinical activities and Clinical Trials, applications for and securing of Regulatory Approvals, First Commercial Sale of the Licensed Product on a country-by-country basis and any future planned Development activities; provided that a presentation before the JDC, accompanied with written documentation such as slides, may substitute for such written report.

(b) Disclosure of Know-How.

(i) Without limiting the obligations under Section 4.2(d), beginning with the Calendar Quarter in which the Effective Date occurs and continuing thereafter [**] during the Term and more frequently as mutually agreed by the Parties, MERRIMACK (consistent with its applicable confidential disclosure obligations to Third Parties, if any) shall disclose to PEI (A) all MERRIMACK Know-How specified in the Development Plan to the extent necessary or useful for the Development or Commercialization of the Licensed Compound or the Licensed Product in the PEI Territory, and (B) any MERRIMACK Know-How not specified in the Development Plan that MERRIMACK reasonably believes to be necessary or useful for the Development or Commercialization of the Licensed Compound or the Licensed Product in the PEI Territory. In particular, MERRIMACK shall during such period disclose or make available to PEI all material data and information under MERRIMACK's Control, regarding the Licensed Compound, Licensed Product and MERRIMACK Know-How, all the foregoing as may be

necessary or useful for the Development or Commercialization of the Licensed Compound or the Licensed Product in the PEI Territory.

(ii) Without limiting the obligations under Section 4.2(d), beginning with the Calendar Quarter in which the Effective Date occurs and continuing thereafter [**] during the Term and more frequently as mutually agreed by the Parties, PEI (consistent with its applicable confidential disclosure obligations to Third Parties, if any) shall disclose to MERRIMACK (A) all PEI Know-How specified in the Development Plan to the extent necessary or useful for the Development or Commercialization of the Licensed Compound or the Licensed Product outside the PEI Territory, and (B) any PEI Know-How not specified in the Development Plan that PEI reasonably believes to be necessary or useful for the Development or Commercialization of the Licensed Compound or the Licensed Product outside the PEI Territory. In particular, PEI shall during such period disclose or make available to MERRIMACK all material data and information under PEI's Control, regarding the Licensed Compound, Licensed Product and PEI Know-How, all the foregoing as may be necessary or useful for the Development or Commercialization of the Licensed Compound or the Licensed Product outside the PEI Territory.

Section 4.5 Third Party Patent Rights and Know-How. In the event PEI or MERRIMACK receives notice or otherwise becomes aware of any facts that the making, having made, using, offering for sale, selling or importing the Licensed Product in accordance with this Agreement infringes, may infringe or is alleged by a Third Party to infringe any Third Party Patent Rights (including any patent application that would be infringed if issued as a patent), the Party becoming aware of same shall promptly notify the other. Each Party shall have the right, in its sole discretion, to negotiate with any Third Party to acquire, or for a license of, such Third Party's Patent Rights or Know-How; provided that to the extent either Party (the "Licensing Party") obtains a license to such Third Party's Patent Rights or Know-How that is reasonably necessary or useful to Develop, manufacture or Commercialize the Licensed Compound or the Licensed Product in a country or countries in which the other Party holds rights to Develop, manufacture or Commercialize the Licensed Compound or the Licensed Product, then if the Licensing Party has the right to grant a sublicense to such other Party and such other Party requests a sublicense, such Third Party Patent Rights or Know-How shall be deemed to be Controlled by the Licensing Party; except that, if such other Party requests a sublicense under such Third Party's Patent Rights or Know-How and such sublicense would require the Licensing Party to make any additional payments or pay royalties to such Third Party in connection with such sublicense grant, the Patent Rights or Know-How will only be deemed to be Controlled by the Licensing Party if the non-Licensing Party reimburses the Licensing Party for any reasonable additional payments or royalties due to the Third Party that are directly related to such sublicense. Each Party will keep the other Party informed through the JSC and the JDC of any activities undertaken by such Party under this Section 4.5, and the Parties will cooperate reasonably in such activities as appropriate.

Section 4.6 Biological Materials.

(a) Generally. For purposes of facilitating the conduct of the Development Program, each Party shall provide to the other Party animal or human tissues, cells, blood samples and other materials (but excluding, for the avoidance of doubt, any Licensed Compound

or Licensed Product provided pursuant to Article VI) ("Biological Materials") specified from time to time in the Development Plan. Each Party agrees to provide all such Biological Materials to the other Party in accordance with the Development Plan. The Parties agree that:

(i) all Biological Materials provided by one Party to the other shall remain the sole property of the supplying Party;

(ii) all Biological Materials provided by one Party to the other shall be used solely for research and Development purposes in material compliance with all applicable federal, state or local laws, regulations and guidelines;

(iii) as applicable, the Party providing such Biological Materials shall obtain (or cause its Third Party collaborators to obtain or certify that they have obtained) all appropriate and required consents from the source of such Biological Materials; and

(iv) Biological Materials provided by one Party to the other shall not be made available by the other Party to any Third Party except as explicitly contemplated in the Development Plan or upon the prior written consent of the Party providing such Biological Materials.

(b) Disclaimer. The Parties agree that THE BIOLOGICAL MATERIALS ARE PROVIDED "AS IS" AND WITHOUT ANY REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR ANY PARTICULAR PURPOSE OR ANY WARRANTY THAT THE USE OF THE MATERIALS WILL NOT INFRINGE OR VIOLATE ANY PATENT OR OTHER PROPRIETARY RIGHTS OF ANY THIRD PARTY.

Section 4.7 Subcontracting. PEI shall not engage any Affiliate or Third Party subcontractor to perform its obligations under the Development Plan without the prior written consent of MERRIMACK, which consent shall not be unreasonably withheld, conditioned or delayed; provided that PEI will not have to obtain consent for Merrimack for (a) any subcontract for services of an administrative nature not involving or implicating technology rights relevant to the Licensed Compound or the Licensed Product that involves the payment of no more than [**] US Dollars (US$[**]) or the equivalent; and (b) any subcontract related to any activities performed by PEI at its own cost under Section 4.2(b)(iii).

Article V

Transfer of Information; Regulatory Matters

Section 5.1 Transfer of Information and Regulatory Activities. As soon as practicable after the Effective Date, but in no case later than [**] days after the Effective Date, PEI shall transition all regulatory activities related to the Licensed Compound and the Licensed Product in the MERRIMACK Territory. As part of such transition of regulatory activities to MERRIMACK, PEI hereby grants to MERRIMACK a Right of Reference or Use outside the PEI Territory to all Regulatory Documentation for the Licensed Compound or the Licensed Product in the MERRIMACK Territory that is Controlled by PEI and agrees to sign, and cause

its Affiliates to sign, any instruments reasonably requested by MERRIMACK in order to further effect such grant. PEI shall permit any relevant Regulatory Authority to inspect any such Regulatory Documentation upon reasonable notice to PEI. PEI shall also permit MERRIMACK, upon reasonable notice, during regular business hours, to inspect any such Regulatory Documentation; provided that, MERRIMACK shall use reasonable efforts to limit such

inspections by MERRIMACK to a moderate frequency reasonably necessary or desirable in order to facilitate MERRIMACK's Development and Commercialization of the Licensed Compound and Licensed Product. As of the Effective Date, MERRIMACK does not anticipate that it would require more than [**] of such inspections conducted by MERRIMACK in a Calendar Year.

Section 5.2 MERRIMACK Regulatory Responsibility. Subject to Section 5.1 and Section 5.3, following the Effective Date, MERRIMACK shall own and be responsible for preparing, filing and maintaining all Regulatory Documentation and Regulatory Approvals that are required for the Development or Commercialization of the Licensed Compound or the Licensed Product outside the PEI Territory and MERRIMACK shall otherwise be responsible for and have sole authority as to all interactions with Regulatory Authorities outside the PEI Territory, provided, that:

(a) PEI shall provide MERRIMACK with assistance as may be reasonably requested by MERRIMACK, at MERRIMACK's expense (but not to exceed the amount for such expense that has been approved in writing by MERRIMACK in advance) in accordance with Section 4.1(d), with respect to Regulatory Documentation for the Licensed Compound or the Licensed Product in accordance with the Development Plan;

(b) MERRIMACK shall take such actions and otherwise cooperate with PEI as may be reasonably requested by PEI to enable PEI to perform the regulatory activities assigned to PEI under the Development Plan (for clarity, except as otherwise set forth in Section 5.3, all filings and all interactions with Regulatory Authorities shall be conducted and implemented by, and shall be in the name of, MERRIMACK); and

(c) MERRIMACK hereby grants to PEI a Right of Reference or Use to any Regulatory Documentation outside the PEI Territory Controlled by MERRIMACK for use by PEI in the PEI Territory, and agrees to sign, and cause its Affiliates to sign, from time to time, promptly upon request, any instruments reasonably requested by PEI in order to further effect such grant. MERRIMACK shall permit any relevant Regulatory Authority to inspect any such Regulatory Documentation upon reasonable notice to MERRIMACK. MERRIMACK shall also permit PEI, upon reasonable notice, during regular business hours, to inspect any such Regulatory Documentation; provided that, PEI shall use reasonable efforts to limit such inspections by PEI to a moderate frequency reasonably necessary or desirable in order to facilitate PEI's Development and Commercialization of the Licensed Compound and Licensed Product. As of the Effective Date, PEI does not anticipate that it would require more than [**] of such inspections conducted by PEI in a Calendar Year.

Section 5.3 PEI Regulatory Responsibility.

(a) Under the direction of the JDC, PEI shall own and be responsible for preparing, filing and maintaining all Regulatory Documentation and Regulatory Approvals in the PEI Territory and otherwise be responsible for and have sole authority as to all interactions with Regulatory Authorities in the PEI Territory.

(b) MERRIMACK shall, in accordance with Section 4.1(d), pay PEI for Development Costs incurred by PEI in performing regulatory activities assigned to PEI under the Development Plan, provided that all the foregoing are in accordance with the applicable budget in the Development Plan for such activities.

(c) PEI hereby grants to MERRIMACK a Right of Reference or Use to any Regulatory Documentation in the PEI Territory Controlled by PEI for use by MERRIMACK outside the PEI Territory, and agrees to sign, and cause its Affiliates to sign, from time to time, promptly upon request, any instruments reasonably requested by MERRIMACK in order to further effect such grant.

Section 5.4 Communications with Regulatory Authorities.

(a) Following the Effective Date, subject to Section 5.3, MERRIMACK shall be responsible for all submissions to, and communications and interactions with, Regulatory Authorities outside the PEI Territory with respect to the Licensed Compound and the Licensed Product, and PEI shall, under the direction of the JDC, be responsible for submissions to, and communications and interactions with, Regulatory Authorities in the PEI Territory with respect to the Licensed Compound and the Licensed Product. In connection therewith:

(i) MERRIMACK shall keep PEI reasonably informed regarding MERRIMACK's (or its Affiliate's or sublicensee's) regulatory strategy, planned regulatory submissions and material communications with Regulatory Authorities in the United States, the Major EU Countries and the Major Asian Countries with respect to the Licensed Compound and the Licensed Product, including any material changes to such strategy, submissions or communications. MERRIMACK shall, to the extent (A) relevant to Development of the Licensed Compound and the Licensed Product in the PEI Territory and (B) Controlled by MERRIMACK, provide PEI with copies of material regulatory submissions to, and material communications with, any Regulatory Authorities in the United States, the MERRIMACK Europe Territory and the MERRIMACK Asia Territory relating to the Licensed Compound and the Licensed Product.

(ii) Subject to the direction of the JDC, to the extent relevant to the Development of the Licensed Compound and Licensed Product and Commercialization of the Licensed Compound and Licensed Product outside the PEI Territory, PEI shall conduct regulatory activities in the PEI Territory in accordance with the regulatory strategy set forth in the Development Plan. PEI shall keep MERRIMACK reasonably informed regarding PEI's (or its Affiliate's or sublicensee's) planned regulatory submissions and material communications with Regulatory Authorities in the PEI Territory with respect to the Licensed Compound and the Licensed Product, including any material changes to such submissions or communications, PEI shall, to the extent (A) relevant to Development of the Licensed Compound and the Licensed Product outside the PEI Territory and (B) Controlled by PEI, provide MERRIMACK with copies

of regulatory submissions to, and material communications with, any Regulatory Authorities in the PEI Territory relating to the Licensed Compound and the Licensed Product.

(b) Without limiting the generality of any of the foregoing in this Section 5.4,

(i) To the extent relevant to the Development or Commercialization of the Licensed Compound and the Licensed Product in the PEI Territory, MERRIMACK shall also promptly provide PEI with a copy of all material correspondence that MERRIMACK (or its Affiliate or sublicensee) receives from, or submits to, any Regulatory Authorities in the United States, the Major EU Countries and the Major Asian Countries, including (to the extent relevant and requested) contact reports concerning conversations or substantive meetings, contact reports of all Regulatory Authority interactions concerning conversations or substantive meetings, all IND annual reports (including any equivalent filings outside the United States), and cover letters of all agency submissions (it being understood that PEI may request, and shall then receive, copies of all attachments to any such cover letters) relating to the Licensed Compound or the Licensed Product. To the extent relevant to the Development or Commercialization of the Licensed Compound and the Licensed Product in the PEI Territory and requested by PEI, MERRIMACK shall also provide PEI with any meeting minutes that MERRIMACK prepares that reflect material communications with any Regulatory Authorities in the United States, the Major EU Countries and the Major Asian Countries regarding the Licensed Compound or the Licensed Product. PEI shall use the information and materials provided by MERRIMACK pursuant to this Section 5.4(b)(i) solely in the Development and Commercialization of the Licensed Compound and the Licensed Product in the PEI Territory and in accordance with the provisions of Article XI.

(ii) To the extent relevant to the Development or Commercialization of the Licensed Compound and the Licensed Product outside the PEI Territory, PEI shall also promptly provide MERRIMACK with a copy of all material correspondence that PEI (or its Affiliate or sublicensee) receives from, or submits to, the DOH, including (to the extent relevant and requested) contact reports concerning conversations or substantive meetings, contact reports of all DOH interactions concerning conversations or substantive meetings, all IND annual reports (or the equivalent filing in Taiwan), and cover letters of all agency submissions (it being understood that MERRIMACK may request, and shall then receive, copies of all attachments to any such cover letters) relating to the Licensed Compound or the Licensed Product. To the extent relevant to the Development or Commercialization of the Licensed Compound and the Licensed Product outside the PEI Territory and requested by MERRIMACK, PEI shall also provide MERRIMACK with any meeting minutes that PEI prepares that reflect material communications with the DOH regarding the Licensed Compound or the Licensed Product. MERRIMACK shall use the information and materials provided by PEI pursuant to this Section 5.4(b)(ii) solely in the Development and Commercialization of the Licensed Compound and the Licensed Product outside the PEI Territory and in accordance with the provisions of Article XI.

Section 5.5 Product Withdrawals and Recalls. If any Regulatory Authority (a) threatens, initiates or advises any action to remove the Licensed Product from the market in any country of the world, or (b) requires or advises either Party or such Party's Affiliates or sublicensees to distribute a "Dear Doctor" letter or its equivalent regarding use of the Licensed Product in any country of the world, then MERRIMACK (if such action is outside the PEI

Territory) or PEI (if such action is in the PEI Territory), as applicable, shall notify the other Party of such event within [**] Business Days (or sooner if required by applicable Law) after such Party becomes aware of the action, threat, advice or requirement (as applicable). The JSC will discuss and attempt to agree upon whether to recall or withdraw the Licensed Product; provided, however, that if the Parties fail to agree within an appropriate time period or if the matter involves a safety issue that, in order to protect patient safety, does not allow for sufficient time for a discussion at the JSC level, MERRIMACK shall decide whether to recall or withdraw the Licensed Product outside the PEI Territory and shall undertake any such recall or withdrawal outside the PEI Territory at its own cost and expense, and PEI shall decide whether to recall or withdraw the Licensed Product in the PEI Territory and shall undertake any such recall or withdrawal in the PEI Territory at its own cost and expense.

Section 5.6 Pharmacovigilance; Safety Data Reporting. The collaboration between the Parties may involve exchanging safety information and adverse event information for the Licensed Product. Therefore, the Parties agree to enter into negotiations to set up a detailed safety data exchange agreement (the "SDEA") in due time (*i.e.*, prior to the start of any Clinical Trial by MERRIMACK), under which MERRIMACK shall be responsible for the worldwide safety database for the Licensed Product, to govern any future pharmacovigilance exchange between the Parties when relevant (e.g., in the case where PEI is sponsoring Clinical Trials). Each Party shall ensure, through its JDC representatives or designated personnel, that the competent pharmacovigilance groups or personnel from such Party begin to negotiate and establish the appropriate SDEA no later than [**] months before MERRIMACK commences clinical development hereunder. The SDEA shall be negotiated in good faith between the pharmacovigilance departments of each Party. The SDEA shall define the roles and responsibilities of both Parties in terms of pharmacovigilance and define the detailed safety exchange required to permit compliance by both Parties with safety reporting requirements to Regulatory Authorities and other entities in the respective licensed territories and ensure worldwide safety surveillance.

Article VI

Manufacturing

Section 6.1 Transition of Manufacture and Supply.

(a) As soon as practicable after the Effective Date, but in no case later than [**] days after the Effective Date, PEI and MERRIMACK shall meet to discuss a process for transitioning, and following such meeting shall promptly commence and complete such transition of, the manufacturing of the Licensed Compound and Licensed Product (including the current [**] per batch process) to MERRIMACK (or its designated Affiliate or Third Party manufacturer) in order to enable MERRIMACK or such Affiliate or Third Party manufacturer to establish manufacture of the Licensed Product for MERRIMACK's Phase III Clinical Studies of the Licensed Product and Commercialization activities. PEI shall provide all reasonably necessary technical assistance to MERRIMACK with respect to the use and implementation of Manufacturing Technology as may be requested by MERRIMACK.

(b) MERRIMACK shall pay PEI, in accordance with a budget to be mutually agreed by the Parties, for all FTE costs of

PEI personnel at the FTE Rate to the extent incurred in performing the transition activities contemplated under Section 6.1(a).

Section 6.2 PEI Manufacture of Licensed Compound.

(a) Without limiting each Party's rights and obligations under Section 6.1, as soon as practicable after the Effective Date, but in no case later than [**] days after the Effective Date, the Parties shall meet to discuss whether PEI has the ability and capacity to manufacture the Licensed Compound for use in MERRIMACK's planned Phase III Clinical Studies of the Licensed Compound.

(b) If the Parties mutually agree that PEI has such ability and capacity and that PEI can manufacture the Licensed Compound in a timely manner to meet the timelines for such Phase III Clinical Studies, and the JDC recommends that PEI should manufacture the Licensed Compound for MERRIMACK's Clinical Trials of the Licensed Compound, PEI shall manufacture and supply (or have manufactured or supplied) to MERRIMACK the Licensed Compound ordered by MERRIMACK for such Clinical Trials. PEI shall manufacture the Licensed Compound in accordance with this clause (b) on a delivery schedule and other customary supply terms and conditions as are mutually agreed by the Parties. Licensed Compound supplied to MERRIMACK in accordance with this clause (b) shall conform to the Specifications and any applicable current good manufacturing practices, and each delivery of Licensed Compound shall be accompanied with a certificate of analysis showing the conformity of the supplied Licensed Compound to the Specifications.

(c) MERRIMACK shall pay PEI for [**] percent ([**]%) of the Manufacturing Costs incurred by PEI (plus, if MERRIMACK is required under applicable Law to withhold any portion of such payments for payment to taxing authorities in any jurisdiction outside of the PEI Territory, MERRIMACK shall pay such additional amounts to PEI as is necessary so that PEI receives [**] percent ([**]%) of such Manufacturing Costs after such withholding by MERRIMACK) for providing clinical supply of Licensed Compound to MERRIMACK pursuant to this Section 6.2 within [**] days following delivery of such supply and PEI's invoice therefor.

(d) In the event that PEI manufactures Licensed Compound that fails to conform to the Specifications, the Parties shall [**] the costs of such non-conforming Licensed Product to the extent reasonably allocable to supply for use in activities the Development Costs of which MERRIMACK would otherwise be responsible for hereunder and PEI shall [**] bear the costs of such non-conforming Licensed Compound to the extent reasonably allocable to supply for use in activities conducted by PEI pursuant to Section 4.2(b)(iii).

(e) MERRIMACK will use (or cause its designated Affiliate or Third Party manufacturer to use) Commercially Reasonable Efforts to scale up the manufacturing process for the Licensed Compound and the Licensed Product as appropriate to support MERRIMACK's Commercialization of the Licensed Product in the MERRIMACK Territory, as reasonably determined by MERRIMACK. If requested by PEI from time to time, MERRIMACK shall transfer the then-current manufacturing process to PEI (or its designated Affiliate or Third Party manufacturer), at [**] to PEI, and each such improved process will be considered MERRIMACK Licensed Technology subject to PEI's rights under this Agreement.

Article VII
Commercialization

Section 7.1 Overview.

(a) MERRIMACK will have sole responsibility for the Commercialization of the Licensed Product outside the PEI Territory, including all costs and expenses relating thereto, and for booking sales of the Licensed Product outside the PEI Territory.

(b) PEI will have sole responsibility for the Commercialization of the Licensed Product in the PEI Territory, including all costs and expenses relating thereto, and for booking sales of the Licensed Product throughout the PEI Territory.

Section 7.2 Manufacturing. The Parties may, by mutual agreement, coordinate through the JMC the commercial supply of Licensed Product to achieve cost efficiencies.

Section 7.3 Complaints.

(a) The Parties shall develop, implement, and abide by:

(i) a customary policy for handling complaints that may be made, alleged or threatened by a Third Party with respect to the use of any promotional, advertising, patient information, communication and educational materials by a Party relating to the Licensed Product; and

(ii) a customary policy for handling and investigating complaints made, alleged or threatened by a Third Party with respect to the manufacturing, handling or storage of the Licensed Product.

(b) MERRIMACK shall be responsible for handling all complaints with respect to the Licensed Product outside the PEI Territory, and all costs and expenses associated therewith. PEI shall be responsible for handling all complaints with respect to the Licensed Product in the PEI Territory, and all costs and expenses associated therewith.

Article VIII
Grant of Licenses

Section 8.1 License Grants from MERRIMACK to PEI. Subject to the terms and conditions of this Agreement, including Section 8.2(b), MERRIMACK hereby grants to PEI:

(a) a paid-up, royalty-free, exclusive right and license under the MERRIMACK Licensed Technology and MERRIMACK's rights to the Joint Technology, to research, have researched, develop, have developed, make, have made, use, offer for sale, sell, have sold and import the Licensed Compound and the Licensed Product in the Field in the PEI Territory; provided that MERRIMACK reserves the right to (i) conduct Development activities inside the PEI Territory solely to support the Development and Commercialization of Licensed Compound

and Licensed Products outside the PEI Territory, and (ii) manufacture Licensed Compound and Licensed Products inside the PEI Territory solely for use and distribution outside the PEI Territory; and

(b) a paid-up, royalty-free, non-exclusive right and license in the Field outside the PEI Territory under the MERRIMACK Licensed Technology and MERRIMACK's rights to the Joint Technology, (i) to the extent necessary for PEI to perform its obligations under the Development Plan, and (ii) to Develop and manufacture the Licensed Compound and the Licensed Product outside the PEI Territory solely in support of Development and Commercialization of the Licensed Compound and the Licensed Product within the PEI Territory.

The licenses granted to PEI under this Section 8.1 shall be (i) sublicenseable by PEI only in accordance with Section 8.3 and (ii) transferable by PEI only in accordance with Section 16.2.

Section 8.2 License Grants from PEI to MERRIMACK. Subject to the terms and conditions of this Agreement, including Section 8.1(b), PEI hereby grants to MERRIMACK:

(a) an exclusive right and license under the PEI Licensed Technology and PEI's rights to the Joint Technology, to research, have researched, develop, have developed, make, have made, use, offer for sale, sell, have sold, import and export the Licensed Compound and the Licensed Product in the Field outside the PEI Territory; provided that PEI reserves the right to (i) conduct Development activities outside the PEI Territory solely to support the Development and Commercialization of Licensed Compound and Licensed Products inside the PEI Territory, and (ii) manufacture Licensed Compound and Licensed Products outside the PEI Territory solely for use and distribution within the PEI Territory; and

(b) a paid-up, royalty-free, non-exclusive right and license in the Field in the PEI Territory under the PEI Licensed Technology and PEI's rights to the Joint Technology, (i) to the extent necessary for MERRIMACK to perform its obligations under the Development Plan, and (ii) to Develop and manufacture the Licensed Compound and the Licensed Product in the PEI Territory solely in support of Development and Commercialization of the Licensed Compound and the Licensed Product outside the PEI Territory

The licenses granted to MERRIMACK under this Section 8.2 shall be (i) sublicenseable by MERRIMACK only in accordance with Section 8.3 and (ii) transferable by MERRIMACK only in accordance with Section 16.2. The license granted to MERRIMACK under Section 8.2(a) shall be (A) royalty-bearing (as specified in Section 9.4) in the MERRIMACK Territory and (B) paid-up and royalty-free outside the MERRIMACK Territory.

Section 8.3 Sublicense Rights.

(a) Subject to the terms of this Agreement, including the remainder of this Section 8.3, each Party shall have the right to grant sublicenses within the scope of the licenses granted to such Party under Section 8.1, Section 8.2 or Section 13.5, as applicable, to its Affiliates or Third Parties which such Party is conducting collaborative research, Development or Commercialization activities with respect to the Licensed Compound or the Licensed Product.

(b) Any sublicense granted under this Agreement shall be pursuant to a written agreement that imposes on such sublicensee obligations that are at least as restrictive as all relevant restrictions and limitations set forth in this Agreement, including the confidentiality provisions of Article XI and to the extent applicable to the sublicensed rights, diligence obligations with respect to the sublicensed territory that are sufficient to enable the sublicensing Party to satisfy its diligence obligations under Section 4.3. If either Party grants a sublicense to a Third Party as permitted by this Section 8.3, then such sublicensing Party shall provide the other Party prompt written notice thereof. The sublicensing Party shall provide the non-sublicensing Party with an executed copy of any such sublicense (redacted as the sublicensing Party may reasonably determine to protect confidential or commercially sensitive information; provided that the sublicensing Party may not redact any information that is necessary for the non-sublicensing Party to determine whether such sublicense meets the requirements of this Agreement). Except as otherwise agreed by the Parties in writing, each Party shall be jointly and severally responsible with its sublicensees to the other Party for failure by its sublicensees to comply with this Agreement. For purposes of clarity, PEI shall not be considered a sublicensee of MERRIMACK for the purposes of this Section 8.3.

Section 8.4 Restrictions on Sale or License.

(a) Restrictions on PEI. Except as may otherwise be permitted herein, during the Term, PEI shall not, and shall cause its Affiliates and sublicensees not to, directly or indirectly, including through the use of one or more agents or Persons with whom PEI or its Affiliates or sublicensees are in direct or indirect privity of contract:

(i) sell, distribute or otherwise dispose of, or grant any license or other right to any entity other than MERRIMACK and its Affiliates and sublicensees to sell, distribute or otherwise dispose of the Licensed Product to any Person outside the PEI Territory, or knowingly to any Person for importation into countries outside the PEI Territory; or

(ii) from the Effective Date until the earlier of (A) [**] or (B) [**] months following [**], commence any Clinical Trials or other clinical research, or grant any license or other right to any Person or entity to commence any Clinical Trials or other clinical research, anywhere in the world, relating to any product that consists of [**].

(b) Restrictions on MERRIMACK. Except as may otherwise be permitted herein, during the Term, MERRIMACK shall not, and shall cause its Affiliates and sublicensees (other than PEI) not to, directly or indirectly, including through the use of one or more agents or Persons with whom MERRIMACK or its Affiliates or sublicensees (other than PEI) are in direct or indirect privity of contract:

(i) sell, distribute or otherwise dispose of, or grant any license or other right to any entity other than PEI and its sublicensees to sell, distribute or otherwise dispose of the Licensed Product to any Person in the PEI Territory, or knowingly to any Person for importation into the PEI Territory; or

(ii) from the Effective Date until the earlier of (A) [**] or (B) [**] months following [**], commence any Clinical Trials or other clinical research, or grant any license or

other right to any Person or entity to commence any Clinical Trials or other clinical research, anywhere in the world, relating to any product that consists of [**].

Section 8.5 No Implied Licenses. Except as explicitly set forth in this Agreement, neither Party grants to the other Party any license, express or implied, under its intellectual property rights.

Section 8.6 Section 365(n) of the Bankruptcy Code. All rights and licenses granted under or pursuant to any section of this Agreement are, and shall otherwise be deemed to be, for purposes of Section 365(n) of the Bankruptcy Code licenses of rights to "intellectual property" as defined under Section 101(35A) of the Bankruptcy Code (or any other provisions of equivalent Law outside the United States). Each Party agrees that the other Party, as licensee of such rights under this Agreement, will retain and may fully exercise all of its rights and elections under the Bankruptcy Code or any other provisions of applicable Law outside the United States that provide similar protection for licenses of rights to "intellectual property".

Article IX
Financial Provisions

Section 9.1 Upfront Payment. MERRIMACK shall pay PEI a one-time, non-refundable, non-creditable fee of Ten Million Dollars (US$10,000,000) within five (5) Business Days after the Effective Date.

Section 9.2 Development and Regulatory Milestones.

(a) Subject to Section 4.3(a)(iii), MERRIMACK shall pay PEI the amounts set forth below for achievement of the corresponding event milestones by MERRIMACK or its Affiliates or sublicensees (other than PEI) with respect to the Licensed Compound or the Licensed Product:

Development and Regulatory Milestone Events for the Licensed Compound or the Licensed Product		**Dollars [**]**
(i)	[**]	$ [**]
(ii)	[**]	$ [**]
(iii)	[**]	$ [**]
(iv)	[**]	$ [**]
(v)	[**]	$ [**]
(vi)	[**]	$ [**]
	For clarity: TOTAL	**$ 80.0**

(b) Each milestone payment set forth in this Section 9.2 shall be payable by MERRIMACK upon the achievement of the related milestone event by MERRIMACK or any of its Affiliates or sublicensees (other than PEI), and MERRIMACK shall provide notice to PEI within [**] days after such achievement. Upon receipt of MERRIMACK's notice that a milestone event has been achieved, PEI shall prepare and provide MERRIMACK with the corresponding invoice and MERRIMACK shall pay PEI each such milestone payment within [**] days after receipt of such invoice.

(c) None of the payments listed in this Section 9.2 shall be payable more than once, and each shall be payable at the first achievement of the applicable milestone event for the Licensed Compound or the Licensed Product.

Section 9.3 Sales Milestones.

(a) MERRIMACK shall pay the amounts set forth below upon the first achievement of the corresponding sales milestone by the Licensed Product in the MERRIMACK Territory:

Sales Milestone Event for Licensed Product in the MERRIMACK Territory		**Dollars [**]**
(i)	Annual Net Sales in the MERRIMACK Territory for the Licensed Product exceed $[**]	$ [**]
(ii)	Annual Net Sales in the MERRIMACK Territory for the Licensed Product exceed $[**]	$ [**]
(iv)	Annual Net Sales in the MERRIMACK Territory for the Licensed Product exceed $[**]	$ [**]
	For clarity: TOTAL	**$ 130.0**

(b) Each milestone payment set forth in Section 9.3(a) shall be payable by MERRIMACK in accordance with Section 9.6.

(c) None of the payments listed in this Section 9.3 shall be payable more than once, and each shall be payable at the first achievement of the applicable milestone event for the Licensed Product.

Section 9.4 Royalties.

(a) Royalty Rate for MERRIMACK Territory. As to sales of the Licensed Product in the MERRIMACK Territory by MERRIMACK, its Affiliates or sublicensees (other than PEI), subject to adjustment under Section 9.4(c) and Section 9.4(d) and to the remainder of this Section 9.4,

MERRIMACK shall pay PEI royalties on Annual Net Sales of the Licensed Product in the MERRIMACK Territory, at the incremental royalty rates set forth below:

Annual Net Sales (in US Dollars) of the Licensed Product in the MERRIMACK Territory	Incremental Royalty Rates as a Percentage (%) of Net Sales
Portion of Annual Net Sales up to and including $[**]	[**]%
Portion of Annual Net Sales that is equal to or exceeds $[**], up to and including $[**]	[**]%
Portion of Annual Net Sales is equal to or exceeds $[**], up to and including $[**]	[**]%
Portion of Annual Net Sales is equal to or exceeds $[**]	[**]%

For example, if Annual Net Sales of a given Licensed Product in the MERRIMACK Territory for a given Calendar Year were US$[**], then the royalty payable to PEI on such Net Sales of the Licensed Product in the MERRIMACK Territory under this Section 9.4(a) for that year would be US$[**], which is calculated as follows: [**].

(b) Royalty Term. The applicable royalties payable to PEI under Section 9.4(a) above (as such royalty rates may be adjusted in accordance with Section 9.4(c) and Section 9.4(d)) shall be paid by MERRIMACK on Net Sales of the Licensed Product during the applicable Royalty Term.

(c) Reduction for Generic Competition.

(i) If one or more Generic Products exists with respect to the Licensed Product and such Generic Product(s) is(are) marketed and sold in a given country by one or more Third Parties during any Calendar Quarter during the Royalty Term, then the royalty rate applicable to Net Sales of the Licensed Product in such country shall be reduced as follows:

(A) If the market share of the Licensed Product in such country during such Calendar Quarter exceeds [**] percent ([**]%), on a unit basis, of the combined units of the Licensed Product and such Generic Product(s) sold in such country during such Calendar Quarter, the royalty rate applicable to Net Sales of the Licensed Product in such country shall [**];

(B) If the market share of the Licensed Product in such country during such Calendar Quarter exceeds [**] percent ([**]%), but is less than or equal to [**] percent ([**]%), on a unit basis, of the combined units of the Licensed Product and such Generic Product(s) sold in such country during such Calendar Quarter, the royalty rate applicable to Net Sales of the Licensed Product in such country shall be reduced by [**] percent ([**]%); and

(C) If the market share of the Licensed Product in such country during such Calendar Quarter is less than or equal to [**] percent ([**]%), on a unit basis, of the

combined units of the Licensed Product and such Generic Product(s) sold in such country during such Calendar Quarter, the royalty rate applicable to Net Sales of the Licensed Product in such country shall be reduced by [**] percent ([**]%).

(ii) For purposes of clarity, the market shares and corresponding royalty rate reductions referred to in Section 9.4(c)(i) above shall be determined and applied on a Calendar Quarter-by-Calendar Quarter basis. Such market share determinations shall be based on data provided by IMS International or, if such data are not available from IMS International, from such other data source as shall be agreed by the Parties (such agreement not to be unreasonably withheld, conditioned or delayed).

(d) Third Party Royalty Obligations. Subject to Section 4.5, if MERRIMACK (i) reasonably determines in good faith that, in order to avoid infringement of any patent not licensed hereunder, it is reasonably necessary to obtain a license from a Third Party in order to Develop or Commercialize the Licensed Product in a country in the MERRIMACK Territory, and to pay a royalty or other consideration under such license (including in connection with the settlement of a patent infringement claim), or (ii) shall be subject to a final court or other binding order or ruling requiring any payments, including the payment of a royalty, to a Third Party patent holder in respect of future sales of the Licensed Product in a country in the MERRIMACK Territory, then the amount of MERRIMACK's royalty payments under Section 9.4(a) with respect to Net Sales of the Licensed Product in such country shall be reduced by [**] percent ([**]%) of the amount paid by MERRIMACK to such Third Party that is reasonably and appropriately allocable to the Licensed Product in the MERRIMACK Territory.

(e) Limit on Deductions.

(i) Notwithstanding anything in this Agreement to the contrary, except as otherwise set forth in clause (ii) below, in no event shall the amount of any royalties payable by MERRIMACK pursuant to Section 9.4(a) with respect to the Licensed Product in any country, on a country-by-country basis, for a given Calendar Quarter, be reduced to less than [**] percent ([**]%) of the amounts specified in Section 9.4(a) for the applicable Calendar Quarter, as a result of reductions made under Section 9.4(c) or Section 9.4(d); provided that MERRIMACK shall be entitled to carry over to future Calendar Quarters any excess adjustments or credits.

(ii) If the reduction set forth in Section 9.4(c)(i)(C) applies in a particular country in a particular Calendar Quarter, the royalties with respect to the Licensed Product in such country for such Calendar Quarter may be reduced to [**] percent ([**]%) of the royalties that would otherwise be due pursuant to Section 9.4(a).

(f) Royalties Payable Only Once. The obligation to pay royalties is imposed only once with respect to the same unit of the Licensed Product.

Section 9.5 Sublicense Revenue. MERRIMACK shall pay to PEI a portion of all Sublicense Revenue as follows:

Sublicense Timeframe	Portion of Sublicense Revenue to be paid to PEI
Sublicense agreement executed prior to [**].	[**]%
Sublicense agreement executed on or after [**].	[**]%
Sublicense agreement executed on or after [**].	[**]%

Section 9.6 Reports and Payments. Within [**] days after the end of each Calendar Quarter during which there are Net Sales or Sublicense Revenue giving rise to a payment obligation under Section 9.3, Section 9.4 or Section 9.5, MERRIMACK shall deliver to PEI reasonably detailed written accountings of Net Sales of the Licensed Product in the MERRIMACK Territory, and royalties, sales milestone payments and Sublicense Revenue, if any, due to PEI, for such Calendar Quarter. Such quarterly reports shall indicate gross sales on a country-by-country basis, the deductions from gross sales used in calculating Net Sales and the resulting calculation of royalties and sales milestone payments. When MERRIMACK delivers such accountings to PEI, MERRIMACK shall also deliver all royalty payments, and sales milestone payments and Sublicense Revenue payments due hereunder to PEI for the Calendar Quarter.

Section 9.7 Recordkeeping; Audit Rights.

(a) Audits by PEI. MERRIMACK shall keep, and shall require its Affiliates and sublicensees (other than PEI) to keep, complete and accurate records of the latest [**] years of Net Sales in the MERRIMACK Territory of the Licensed Product to which royalties or sales milestones attach hereunder. For the sole purpose of verifying amounts payable to PEI hereunder, PEI shall have the right once each Calendar Year, at PEI's expense, to retain an independent certified public accountant selected by PEI and reasonably acceptable to MERRIMACK, to review such records in the location(s) where such records are maintained by MERRIMACK, its Affiliates or its sublicensees (other than PEI) upon reasonable notice and during regular business hours and under obligations of confidence. Results of such review shall be made available to both PEI and MERRIMACK. If either Party disputes the results of such review, such Party may submit the matter for resolution in accordance with Article XIV. If the review reflects an underpayment of any amounts payable to PEI, such underpayment shall be remitted to PEI, within [**] days after the notification of the results by PEI to MERRIMACK, together with interest calculated in the manner provided in Section 9.10. If the underpayment is equal to or greater than five percent (5%) of the amount that was otherwise due, MERRIMACK shall pay all of the reasonable out-of-pocket expenses of such review.

(b) Audits by MERRIMACK. PEI shall keep, and shall require its Affiliates and sublicensees to keep, complete and accurate records of the latest [**] years of any Development Costs incurred by PEI in the conduct of Development activities under the Development Plan and Manufacturing Costs incurred by PEI in accordance with Section 6.2. For the sole purpose of verifying amounts payable by MERRIMACK hereunder, MERRIMACK shall have the right once each Calendar Year, at MERRIMACK's expense, to retain an independent certified public accountant selected by MERRIMACK and reasonably acceptable to PEI, to review such records

in the location(s) where such records are maintained by PEI, its Affiliates or its sublicensees upon reasonable notice and during regular business hours and under obligations of confidence. Results of such review shall be made available to both PEI and MERRIMACK. If either Party disputes the results of such review, such Party may submit the matter for resolution in accordance with Article XIV. If the review reflects an overpayment of amounts payable by MERRIMACK, such overpayment shall be reimbursed to MERRIMACK, within [**] days after notification of the results by MERRIMACK to PEI, together with interest calculated in the manner provided in Section 9.10. If the overpayment is equal to or greater than five percent (5%) of the amount that was otherwise due, PEI shall pay all of the reasonable out-of-pocket expenses of such review.

Section 9.8 Method of Payment. All amounts payable by a Party hereunder shall be paid by or on behalf of such paying Party in US Dollars. With respect to sales of the Licensed Product invoiced in US Dollars, the Net Sales upon which royalties and sales milestone payments are payable shall be expressed in US Dollars. With respect to sales of the Licensed Product invoiced in a currency other than US Dollars, the royalties and sales milestone payments are payable shall be expressed in their US Dollar equivalent, calculated using the applicable conversion rates for buying US Dollars published by The Wall Street Journal (Eastern Edition) on the last Business Day of the Calendar Quarter to which the royalty report relates. All payments due to a Party hereunder shall be made by wire transfer directly to an account designated by such Party.

Section 9.9 Invoices. Unless otherwise expressly stated in this Agreement, PEI shall invoice MERRIMACK, on a Calendar Quarter basis with respect to all costs to be reimbursed by MERRIMACK under this Agreement, including Development Costs incurred by PEI in the conduct of PEI's activities under the Development Plan and FTE costs of PEI in connection with the transfer of Manufacturing Technology in accordance with Section 6.1(a) that become due and payable to PEI hereunder, and MERRIMACK shall pay PEI such invoiced amount within thirty (30) days following receipt thereof.

Section 9.10 Late Payments. Any payment under this Agreement that is not paid on or before the date such payment is due shall bear interest at the lesser of (a) [**] percentage points above the prime rate of interest of Citibank, N.A. as announced on the date such payment is due, or (b) the highest rate permitted by applicable Laws, calculated on the number of days such payments are overdue and compounded monthly.

Section 9.11 Tax Withholding.

(a) As of the Effective Date, the Parties anticipate that no foreign withholding tax will apply to payments from MERRIMACK to PEI under this Agreement based on current Laws. If, as a result of the assignment of this Agreement by MERRIMACK to an Affiliate or a Third Party outside of

Bermuda, foreign withholding tax in excess of the foreign withholding tax amount that would have been payable in the absence of such assignment becomes payable with respect to any amount due to PEI under this Agreement, such amount due to PEI will be increased so that the amount actually paid to PEI (after withholding of the excess withholding tax) equals the amount that would have been payable to PEI in the absence of such excess withholding. For purposes of clarity, except as specifically provided in the foregoing sentence,

MERRIMACK shall have no obligation to increase the amounts due to PEI under this Agreement to account for any withholding tax that may apply to such amounts. MERRIMACK will provide PEI evidence of its payment of any withholding tax that reduces a payment to PEI hereunder.

(b) The Parties shall reasonably cooperate in completing and filing documents required under the provisions of any applicable tax Laws or under any other applicable Law in connection with the making of any required tax payment or withholding payment, or in connection with any claim to a refund of or credit for any such payment.

(c) Prior to any payment by MERRIMACK to PEI in a Calendar Year, PEI will provide MERRIMACK with any relevant form required by the relevant tax authorities in order for PEI to attest its fiscal residence and accordingly obtain the application of the reduced withholding tax rate or the exemption from withholding tax, according to the relevant bilateral convention for the prevention of double taxation. In the event PEI fails to return to MERRIMACK such forms duly completed and signed before a payment date, MERRIMACK will declare and pay withholding tax at the local common law rate applicable to the payments, and such tax will be deducted from the corresponding payment by MERRIMACK to PEI. MERRIMACK will remit the withholding tax to the proper tax authority and proof of payment of such tax shall be secured and sent to PEI as evidence of such payment.

Section 9.12 Blocked Payments. In the event that, by reason of applicable Laws in any country, it becomes impossible or illegal for MERRIMACK or its Affiliates or sublicensees, to transfer, or have transferred on its behalf, royalties or other payments to PEI, such royalties or other payments shall be deposited in local currency in the relevant country to the credit of PEI in a recognized banking institution designated by PEI or, if none is designated by PEI within a period of [**] days, in a recognized banking institution selected by MERRIMACK or its Affiliates or sublicensees, as the case may be, and identified in a notice in writing given to PEI. The foregoing shall apply reciprocally to any payment that would be due by PEI to MERRIMACK hereunder.

Article X
Intellectual Property Ownership, Protection and Related Matters

Section 10.1 Ownership of Inventions.

(a) Solely-Owned Inventions. Each Party shall exclusively own all right, title and interest in and to all inventions made or conceived solely by the employees, agents, consultants or contractors of such Party or its Affiliates in the course of performing its activities under this Agreement.

(b) Joint Know-How and Joint Patent Rights. All Joint Know-How and Joint Patent Rights shall be owned jointly on the basis of each Party having an undivided interest in the whole. Each Party covenants that it will not subject any such Joint Know-How or Joint Patent Rights to any lien, encumbrance, security interest or other imposition that would affect the other Party's title or right to use the Joint Know-How or Joint Patent Rights or to sell or otherwise assign its rights thereunder without consent of the other Party, except as otherwise

provided by the terms of this Agreement. Subject to the licenses granted herein and each Party's payment obligations hereunder, each Party shall have the right to exploit such Joint Know-How and Joint Patent Rights without any duty to account to the other Party.

(c) Inventorship. For purposes of determining the Parties' rights under this Agreement, the determination of inventorship shall be made in accordance with United States patent laws. In the event of any dispute regarding inventorship, if the Parties are unable to resolve the dispute, the Parties shall jointly engage mutually acceptable independent US patent counsel not regularly employed by either Party (or, if the Parties are unable to mutually agree on such patent counsel, the LCIA shall appoint such patent counsel) to resolve such dispute. The decision of such independent patent counsel shall be binding on the Parties with respect to the issue of inventorship.

Section 10.2 Prosecution and Maintenance of Patent Rights.

(a) MERRIMACK Patent Rights outside the PEI Territory. MERRIMACK shall have the sole right and option (but not the obligation), at its sole cost and expense, to Prosecute and Maintain any MERRIMACK Patent Rights outside the PEI Territory.

(b) MERRIMACK Patent Rights in the PEI Territory and PEI Patent Rights and Joint Patent Rights Worldwide. MERRIMACK, shall have the first right and option (but not the obligation), at its sole cost and expense, to Prosecute and Maintain the MERRIMACK Patent Rights in the PEI Territory and the PEI Patent Rights and Joint Patent Rights worldwide (collectively, the "Step-In Patent Rights"). In the event that MERRIMACK elects not to file, prosecute, or maintain, or elects to abandon any Step-In Patent Right, or declines to control any related interference, opposition or similar proceedings, MERRIMACK shall give PEI reasonable written notice to this effect, sufficiently in advance to permit PEI, in its sole discretion and cost and expense, to undertake such Prosecution and Maintenance, without a loss of rights, and thereafter PEI may, upon written notice to MERRIMACK, Prosecute and Maintain such Step-In Patent Right.

(c) Costs and Expenses. As from the Effective Date, the Parties shall bear the costs of Prosecuting and Maintaining the Licensed Patent Rights in accordance with Section 10.2(a) and Section 10.2(b).

(d) Cooperation. Each Party agrees to cooperate with the other with respect to the Prosecution and Maintenance of the Licensed Patent Rights pursuant to this Section 10.2. Each Party agrees, as applicable, to:

(i) execute all such documents and instruments and perform such acts as may be reasonably necessary in order to permit the other Party to continue any Prosecution and Maintenance that such Party has elected not to pursue, as provided for in Section 10.2(b);

(ii) make its employees, agents and consultants reasonably available to the other Party (or to the other Party's authorized attorneys, agents or representatives), to the extent reasonably necessary to enable the prosecuting Party to undertake Prosecution and Maintenance;

(iii) with respect to the Step-In Patent Rights, provide (itself or through patent counsel) the other Party a copy of each proposed material correspondence pertaining to substantive Prosecution and Maintenance on the merits, reasonably in advance of any applicable filing or response deadline to allow the other Party to review and comment on the content of such proposed correspondence and advise the prosecuting Party as to the conduct of such Prosecution and Maintenance, which comments and advice the prosecuting Party will not unreasonably decline to follow, provided that doing so is consistent with the goal of obtaining optimal patent coverage for the Licensed Product;

(iv) with respect to the Step-In Patent Rights, provide (itself or through patent counsel) the other Party with copies of all material correspondence pertaining to substantive Prosecution and Maintenance after its submission or receipt, as the case may be; and

(v) seek patent term extensions, adjustments, and the like wherever available for the Step-In Patent Rights.

Section 10.3 Third Party Infringement.

(a) Notice. Each Party shall promptly report in writing to the other Party during the Term any (i) known or suspected infringement of any issued claims within the Licensed Patent Rights, or (ii) misappropriation of any of the Licensed Know-How of which such Party becomes aware. In the event such known or suspected infringement or misappropriation involves the Development, manufacture, use or Commercialization of a product or product candidate that is or may be competitive with the Licensed Compound or the Licensed Product being Developed or Commercialized hereunder ("Competitive Infringement"), the reporting Party shall provide the other Party with all available evidence supporting such infringement, suspected infringement, misappropriation or suspected misappropriation. Promptly after receipt of a notice of a Competitive Infringement, the Parties shall discuss in good faith the infringement and appropriate actions that could be taken to cause such infringement of Licensed Patent Rights or use of misappropriated Licensed Technology to cease.

(b) Enforcement.

(i) PEI shall have the first right, but not the obligation, to initiate a suit or take other appropriate action that it believes is reasonably required to protect (*i.e.*, prevent or abate actual or threatened misappropriation or infringement of, or otherwise enforce, in the best commercial interests of the Licensed Product) the Licensed Technology against any Competitive Infringement in the PEI Territory, at PEI's sole control and expense. If PEI fails to initiate a suit or take other appropriate action that it has the initial right to initiate or take to protect the Licensed Technology against any Competitive Infringement in the PEI Territory within [**] days after becoming aware of the basis for such suit or action, then MERRIMACK may, in its discretion, initiate a suit or take other appropriate action that it believes is reasonably required to protect the Licensed Technology at issue.

(ii) MERRIMACK shall have the first right, but not the obligation, to initiate a suit or take other appropriate action that it believes is reasonably required to protect (*i.e.*, prevent or abate actual or threatened misappropriation or infringement of, or otherwise

enforce, in the best commercial interests of the Licensed Product) the Licensed Technology against any Competitive Infringement outside the PEI Territory, at MERRIMACK's sole control and expense. If MERRIMACK fails to initiate a suit or take other appropriate action that it has the initial right to initiate or take to protect the Licensed Technology against any Competitive Infringement in the MERRIMACK Territory within [**] days after becoming aware of the basis for such suit or action, then PEI may, in its discretion, initiate a suit or take other appropriate action that it believes is reasonably required to protect the Licensed Technology at issue.

(c) Infringement Actions other than Competitive Infringements.

(i) In the event of a Third Party infringement of the MERRIMACK Patent Rights that is not a Competitive Infringement, MERRIMACK, at its own expense, will have the sole right, but not any obligation, to bring and control any legal action in any territory in connection with such infringement.

(ii) In the event of a Third Party infringement of the PEI Patent Rights that is not a Competitive Infringement, PEI, at its own expense, will have the sole right, but not any obligation, to bring and control any legal action in any territory in connection with such infringement.

(d) Conduct of Actions. The Party initiating suit or action shall have the sole and exclusive right to select counsel for any suit initiated by it referred to in Section 10.3(b). If required under applicable Law in order for the initiating Party to initiate or maintain such suit or action, the other Party shall join as a party to the suit or action. Such other Party shall offer reasonable assistance to the initiating Party in connection therewith at no charge to the initiating Party except for payment of reasonable FTE costs at the FTE Rate and reimbursement of reasonable Out-of-Pocket Costs incurred in rendering such assistance. The Party filing any such suit or taking any such action shall provide the other Party with an opportunity to make suggestions and comments regarding such suit or action. Thereafter, the Party filing any such suit or taking any such action shall, to the extent permitted by applicable Law, keep the other Party promptly informed, and shall from time to time consult with such other Party regarding the status of any such suit or action and shall provide such other Party with copies of all material documents (*i.e.*, complaints, answers, counterclaims, material motions, orders of the court, memoranda of law and legal briefs, interrogatory responses, depositions, material pre-trial filings, expert reports, affidavits filed in court, transcripts of hearings and trial testimony, trial exhibits and notices of appeal) filed in, or otherwise relating to, such suit or action. The Party not initiating such suit or action shall cooperate with the Party initiating such suit or action to the extent reasonably requested in accordance with this Section 10.3(d), and shall have the right to participate and be represented in any such suit by its own counsel at its own expense. MERRIMACK shall not conduct any such suit or action in a manner that materially places at risk the scope or validity of any PEI Patent Right or Joint Patent Right without the prior written approval of PEI, and MERRIMACK shall not settle or compromise any claim or proceeding relating to the PEI Patent Rights or Joint Patent Rights without obtaining the prior written consent of PEI, such consent not to be unreasonably withheld, conditioned or delayed. PEI shall not conduct any such suit or action in a manner that materially places at risk the

scope or validity of any MERRIMACK Patent Right or Joint Patent Right without the prior written approval of MERRIMACK, and PEI shall not settle or compromise any claim or proceeding relating to the

MERRIMACK Patent Rights or Joint Patent Rights without obtaining the prior written consent of MERRIMACK, such consent not to be unreasonably withheld, conditioned or delayed.

(e) Recoveries. With respect to any suit or action to protect a Step-In Patent Right in the MERRIMACK Territory or PEI Territory referred to in Section 10.3(b), any recovery obtained as a result of any such proceeding, by settlement or otherwise, shall be applied in the following order of priority:

(i) first, the Party initiating the suit or action with respect to Licensed Technology shall be reimbursed for all costs and expenses in connection with such proceeding paid by such Party and not otherwise recovered; and

(ii) second, any remainder shall be paid [**] percent ([**]%) to the Party initiating such suit or action and [**] percent ([**]%) to the other Party.

Section 10.4 Claimed Infringement. In the event that a Party becomes aware of any claim or threat of claim that the Development, manufacture or Commercialization of the Licensed Compound or the Licensed Product by PEI or MERRIMACK hereunder infringes or misappropriates the intellectual property rights of any Third Party, such Party shall promptly notify the other Party. Each Party shall provide to the other Party copies of any notices it receives from Third Parties regarding any patent nullity actions, any declaratory judgment actions, any alleged infringement of Third Party Patent Rights or any alleged misappropriation of Third Party Know-How. Such notices shall be provided promptly, but in no event after more than fifteen (15) days following receipt thereof. In any such instance, the Parties shall cooperate, subject to Section 4.5, in undertaking an appropriate course of action.

Section 10.5 Patent Invalidity Claim.

(a) If a Third Party at any time asserts a claim that any MERRIMACK Patent Right or Joint Patent Right is invalid or otherwise unenforceable ("MERRIMACK Invalidity Claim"), whether as a defense in an infringement action brought by MERRIMACK or PEI pursuant to Section 10.3 or in an action brought against MERRIMACK or PEI under Section 10.4, including any declaratory judgment action, the Parties shall cooperate with each other in preparing and formulating a response to such Invalidity Claim. PEI shall not settle or compromise any MERRIMACK Invalidity Claim without the consent of MERRIMACK, which consent shall not be unreasonably withheld, conditioned or delayed.

(b) If a Third Party at any time asserts a claim that any PEI Patent Right is invalid or otherwise unenforceable ("PEI Invalidity Claim"), whether as a defense in an infringement action brought by MERRIMACK or PEI pursuant to Section 10.3 or in an action brought against MERRIMACK or PEI under Section 10.4, including any declaratory judgment action, the Parties shall cooperate with each other in preparing and formulating a response to such Invalidity Claim. MERRIMACK shall not settle or compromise any PEI Invalidity Claim without the consent of PEI, which consent shall not be unreasonably withheld, conditioned or delayed.

Section 10.6 Patent Marking. Each Party agrees to comply with the patent marking statutes in each country in which the Licensed Product is sold by such Party, its Affiliates or sublicensees.

Article XI
Confidentiality

Section 11.1 Confidential Information. All Confidential Information disclosed by a Party or any of its Affiliates (the "disclosing Party") to the other Party or any of its Affiliates (the "receiving Party") during the Term shall not be used by the receiving Party or any of its Affiliates except in connection with the activities contemplated by this Agreement, shall be maintained in confidence by the receiving Party and its Affiliates (except as set forth in the remainder of this Article XI), and shall not otherwise be disclosed by the receiving Party or its Affiliates to any Person that is not a Party or one of its Affiliates (except as set forth in the remainder of this Article XI), without the prior written consent of the disclosing Party, except to the extent that the receiving Party can show that:

(a) the Confidential Information was known to the receiving Party or any of its Affiliates prior to its date of disclosure to the receiving Party;

(b) the Confidential Information, either before or after the date of the disclosure to the receiving Party hereunder, is lawfully disclosed to the receiving Party or any of its Affiliates by sources other than the disclosing Party rightfully in possession of the Confidential Information;

(c) the Confidential Information, either before or after the date of the disclosure to the receiving Party hereunder, becomes published or generally known to the public through no fault or omission on the part of the receiving Party;

(d) the Confidential Information is independently developed by or for the receiving Party or any of its Affiliates without reference to or reliance upon the disclosing Party's Confidential Information;

(e) such disclosure is reasonably necessary to Prosecute and Maintain the Licensed Patent Rights;

(f) such disclosure is reasonably necessary to be filed with a Regulatory Authority in connection with the Licensed Compound or the Licensed Product; or

(g) such disclosure is reasonably necessary to enforce the provisions of this Agreement.

If the receiving Party is required by a governmental authority or by order of a court of competent jurisdiction to disclose any of the disclosing Party's Confidential Information, the receiving Party will give the disclosing Party prompt written notice thereof and the receiving Party will take reasonable and lawful actions to avoid or minimize the degree of such disclosure. The receiving Party will cooperate reasonably with the disclosing Party in any efforts to seek a

protective order. Notwithstanding the foregoing, (i) the status, prospects and objectives of the Development activities (other than such status, prospects and objectives arising from the Ongoing Clinical Studies described in Section 1.56(a) or Section 1.56(b)) conducted pursuant to the Development Plan for the Licensed Compound and the Licensed Product outside of the PEI Territory and (ii) all Know-How developed in the Development Program (other than such Know-How arising from the Ongoing Clinical Studies described in Section 1.56(a) or Section 1.56(b)), shall be deemed the Confidential Information of MERRIMACK, with MERRIMACK deemed to be the disclosing Party and PEI deemed to be the receiving Party with respect thereto. Nothing in this paragraph will affect the ownership of any Know-How or information.

Section 11.2 Employee, Director, Consultant and Advisor Obligations. MERRIMACK and PEI each agrees that it and its Affiliates shall provide Confidential Information received from the other Party only to the receiving Party's respective employees, directors, consultants, agents and advisors, and to the employees, directors, consultants, agents and advisors of the receiving Party's Affiliates, who have a need to know such Confidential Information to assist the receiving Party in fulfilling its obligations under this Agreement and who are bound by obligations of confidentiality and non-use that are at least as restrictive as those set forth in this Agreement. Each Party shall remain responsible for any failure by any of such Party's Affiliates, employees, directors, consultants, agents and advisors to treat such Confidential Information as required under Section 11.1.

Section 11.3 Protection of Certain Confidential Information of PEI. Subject to applicable Laws and any ethical obligations binding PEI that would require such disclosure, PEI agrees to use reasonable efforts not to disclose to Third Parties, other than under appropriate confidentiality obligations, its own Confidential Information existing as of the Effective Date, and any Confidential Information of PEI arising prior to or after the Effective Date from the Ongoing Clinical Studies described in Section 1.56(a) or Section 1.56(b), that materially relates to the Licensed Compound and the Licensed Product in any manner that would adversely affect MERRIMACK's Development or Commercialization of the Licensed Compound or the Licensed Product, without first consulting with MERRIMACK.

Section 11.4 Publicity.

(a) Initial Press Release. Upon execution of this Agreement, the Parties shall each separately issue a press release announcing the execution of this Agreement, substantially in the form of Exhibit F-1 or Exhibit F-2 attached hereto, as applicable, and PEI may also issue a translation in the Chinese language of the form of press release attached as Exhibit F-2.

(b) Subsequent Disclosures by PEI. After such initial press release, except as provided in clause (c) below, PEI shall not issue a press release or public announcement relating to the Licensed Compound, Licensed Product or this Agreement without the prior written approval of MERRIMACK, which approval shall not be unreasonably withheld, conditioned or delayed, except that PEI may:

(i) issue such press release or public announcement if the contents of such press release or public announcement have previously been made public other than through a

breach of this Agreement by PEI and such press release or public announcement does not contain MERRIMACK's name;

(ii) issue such a press release or public announcement if required by applicable Law, including by the rules or regulations of the SEC or similar regulatory agency in a country other than the United States or of any stock exchange or NASDAQ; and

(iii) issue such a press release or public announcement regarding:

(A) the commencement, completion or "top-line" results of preclinical and clinical studies of the Licensed Compound or the Licensed Product conducted by PEI in accordance with Section 4.2(b)(iii);

(B) the completion of subject enrollments for clinical studies of the Licensed Compound or the Licensed Product conducted by PEI in accordance with Section 4.2(b)(iii);

(C) the filing by PEI for or receipt of Marketing Authorization with respect to the Licensed Compound or the Licensed Product in the PEI Territory; and

(D) PEI's Commercialization activities in the PEI Territory with respect to the Licensed Compound or the Licensed Product hereunder, including the development of sales, marketing and medical infrastructure and management changes to support Development and Commercialization activities in the PEI Territory.

in each case under clause (i), (ii) or (iii) after first notifying MERRIMACK of such planned press release or public announcement at least [**] Business Days in advance of issuing such press release or making such public announcement (or, with respect to press releases and public announcements made pursuant to the foregoing clause (ii), with as much advance notice as possible under the circumstances if it is not possible to provide notice at least [**] Business Days in advance) for the sole purpose of allowing MERRIMACK to review the proposed press release or public announcement. PEI shall modify any such press release or public announcement as reasonably requested by MERRIMACK to remove any Confidential Information of MERRIMACK and shall include in such press release or public announcement made pursuant to the foregoing clause (ii) only such information relating to the Licensed Compound, Licensed Product or this Agreement as is required by such applicable Law.

(c) Publications.

(i) Research or Development Conducted Prior to Effective Date or Under Section 4.2(b)(iii). PEI shall have the right to publish the results of any research or Development relating to the Licensed Compound or the Licensed Product conducted by PEI prior to the Effective Date or pursuant to Section 4.2(b)(iii), after providing a copy of the material intended for publication or presentation to MERRIMACK for review and comment at least [**] days prior to the date of publication, if such material is an article or manuscript, or [**] days before publication or presentation, if such material is a presentation or an abstract. PEI will reasonably consider MERRIMACK's comments on such publications and presentations and,

subject to applicable Laws or ethical obligations to which PEI is subject and PEI's obligations to Third Parties, PEI will ensure that such publications and presentations are consistent with any publications strategy established by the JDC under Section 3.2(b)(vi). Any such publication or presentation shall appropriately acknowledge the support of MERRIMACK, if applicable.

(ii) Research or Development Conducted Jointly Under the Development Plan. At least [**] days prior to the date of publication, if such material is an article or manuscript, or [**] days before publication or presentation, if such material is a presentation or an abstract, MERRIMACK will provide to PEI for PEI's review and comment a copy of any publication or presentation that includes the results of any research or Development relating to the Licensed Compound or the Licensed Product conducted jointly by the Parties. MERRIMACK will reasonably consider PEI's comments on such publications and presentations and, subject to applicable Laws or ethical obligations to which MERRIMACK is subject and MERRIMACK's obligations to Third Parties, MERRIMACK will ensure that such publications and presentations are consistent with any publications strategy established by the JDC under Section 3.2(b)(vi). Any such publication or presentation shall appropriately acknowledge the efforts and support of PEI.

(iii) Other Publications. Except as provided in this Section 11.4(c) or as otherwise agreed by the Parties or required by any publications strategy established by the JDC under Section 3.2(b)(vi), MERRIMACK will have no obligation to provide to PEI any press releases, publications, presentations or other public disclosures arising from the activities contemplated under this Agreement prior to their publication or disclosure. MERRIMACK will ensure that all public disclosures it makes relating to the activities contemplated under this Agreement or MERRIMACK's exercise or the rights granted it under this Agreement will be consistent with any publications strategy established by the JDC under Section 3.2(b)(vi), and MERRIMACK will provide to PEI a copy of each press release, scientific publication, scientific presentation and other written or electronic scientific public disclosure promptly after such disclosure is made. Any such scientific publication or presentation shall appropriately acknowledge the efforts and support of PEI, as applicable.

Section 11.5 Other Disclosures. Notwithstanding anything in this Agreement to the contrary, each Party shall have the right to disclose Confidential Information or the terms of this Agreement (as applicable):

(i) to investors, potential investors, lenders, potential lenders, acquirers, potential acquirers, investment bankers and other Third Parties in connection with financing, partnering and acquisition activities, solely under obligations of confidentiality and non-use that are at least as restrictive as those set forth in this Article XI;

(ii) to sublicensees, potential sublicensees, collaborators, potential collaborators, and Third Party contractors for purposes of engaging in the Development, manufacture or Commercialization of the Licensed Compound or the Licensed Product as contemplated hereunder, solely under obligations of confidentiality and non-use that are at least as restrictive as those set forth in this Article XI;

(iii) as required by applicable Laws, including rules of the SEC or similar regulatory agency in a country other than the United States or of any stock exchange or other securities trading institution. In the event that this Agreement shall be included in any report, statement or other document filed by either Party or an Affiliate of either Party with the SEC or similar regulatory agency in a country other than the United States or any stock exchange or other securities trading institution, such Party shall use, or shall cause such Party's Affiliate, as the case may be, to use, reasonable efforts to obtain confidential treatment from the SEC, similar regulatory agency, stock exchange or other securities trading institution of any financial information or other information of a competitive or confidential nature, and shall include in such confidentiality request such provisions of this Agreement as may be reasonably requested by the other Party.

Section 11.6 Clinical Trial Registry and Results Databank. Each of MERRIMACK and PEI shall have the obligation to the extent required by applicable Laws or regulations to publish registration information and summaries of data and results from any human clinical trials conducted by such Party under this Agreement on its clinical trials registry or on a government-sponsored database such as www.clinicaltrials.gov or other publicly available websites such as www.clinicalstudyresults.org, without requiring the consent of the other Party. The content of such publication shall be submitted to the JDC for prior approval.

Section 11.7 Term. All obligations of confidentiality imposed under this Article XI shall expire five (5) years following termination of this Agreement.

Article XII
Representations and Warranties

Section 12.1 Representations and Warranties of Both Parties. Each Party hereby represents and warrants to the other Party, as of the Effective Date, that:

(a) such Party is duly organized, validly existing and in good standing under the Laws of the jurisdiction of its incorporation and has full corporate power and authority to enter into this Agreement and to carry out the provisions hereof;

(b) such Party has taken all necessary action on its part to authorize the execution and delivery of this Agreement and the performance of its obligations hereunder;

(c) this Agreement has been duly executed and delivered on behalf of such Party, and constitutes a legal, valid, binding obligation, enforceable against it in accordance with the terms hereof, subject to bankruptcy, insolvency, reorganization, arrangement, winding-up, moratorium, and similar laws of general application affecting the enforcement of creditors' rights generally, and subject to general equitable principles, including the fact that the availability of equitable remedies, such as injunctive relief or specific performance, is in the discretion of the court;

(d) the execution, delivery and performance of this Agreement by such Party does not conflict with any agreement or any provision thereof, or any instrument or binding understanding, oral or written, to which it is a party or by which it is bound, nor to the best of its

knowledge violate any law or regulation of any court, governmental body or administrative or other agency having jurisdiction over such Party; and

(e) no government authorization, consent, approval, license, exemption of or filing or registration with any court or governmental department, commission, board, bureau, agency or instrumentality, domestic or foreign, under any applicable Laws currently in effect, is or will be necessary for, or in connection with, the transaction contemplated by this Agreement or any other agreement or instrument executed in connection herewith, or for the performance by it of its obligations under this Agreement and such other agreements, to conduct Clinical Trials or to seek or obtain Marketing Authorizations.

Section 12.2 Representations and Warranties of PEI. PEI hereby represents and warrants to MERRIMACK, as of the Effective Date, that, except as PEI has disclosed to MERRIMACK as of the Effective Date:

(a) PEI exclusively owns or otherwise Controls all of the rights, title and interest in and to the PEI Licensed Technology necessary to grant, and has the right to grant, all rights and licenses it purports to grant to MERRIMACK with respect to the PEI Licensed Technology under this Agreement;

(b) PEI has not granted any right or license, to any Third Party relating to any of the PEI Licensed Technology, that would conflict with, or limit the scope of, any of the rights or licenses granted to MERRIMACK hereunder;

(c) PEI has not granted any liens or security interests on the PEI Licensed Technology;

(d) To PEI's knowledge, after reasonable inquiry with respect to employees of PEI, it has not (i) employed or used any contractor or consultant that employs any individual or entity debarred or disqualified by the FDA (or subject to a similar sanction by any Regulatory Authority outside the United States) or, (ii) employed any individual or entity that is the subject of an FDA debarment or disqualification investigation or proceeding (or similar proceeding by any Regulatory Authority outside the United States), in each of clauses (i) and (ii) in the conduct of Development activities directed to the Licensed Compound or the Licensed Product;

(e) Except as previously disclosed to MERRIMACK with respect to the Clinical Trial known as [**] (which has been terminated) and the Phase I Clinical Study known as [**], none of the Clinical Trials conducted by PEI with respect to the Licensed Compound has been subject to a [**] by a Regulatory Authority;

(f) PEI has not received any written allegation from a Third Party that any of the PEI Patent Rights is invalid or unenforceable and PEI has not received any written notice that any PEI Patent Right is subject to interference, reexamination, reissue, revocation, opposition, appeal or other administrative proceedings;

(g) PEI has not received, with respect to the PEI Patent Rights or the PEI Know-How, any written notice of infringement or misappropriation or any other written communication

relating to a possible infringement or misappropriation of any Patent Rights or any Know-How Controlled by a Third Party with respect to the Licensed Compound or the Licensed Product or uses thereof;

(h) PEI has taken reasonable measures to protect the confidentiality of the PEI Know-How, and, to PEI's knowledge, no event has occurred which has resulted in the unauthorized use or disclosure of the PEI Know-How by PEI or its personnel of any material part of the PEI Know-How or which otherwise resulted in any material part of the PEI Know-How entering the public domain;

(i) To the actual knowledge of PEI's Chief Executive Officer, Senior Manager of Intellectual Property and Contract, Associate Director of Clinical Research and Senior Manager of CMC, after reasonable inquiry, PEI has disclosed or made available to MERRIMACK, on or before the Effective Date, all material information and data in its possession regarding the Licensed Compound, the Licensed Product, the PEI Patent Rights and the PEI Know-How (other than any such information and data that PEI received from MERRIMACK or its Affiliates under the 2005 License Agreement or otherwise); and

(j) The list of Regulatory Documentation set forth in Exhibit E is a true, correct and complete list of all Regulatory Documentation for the Licensed Compound or the Licensed Product outside the PEI Territory that is Controlled by PEI.

Section 12.3 Representations and Warranties of MERRIMACK. MERRIMACK hereby represents and warrants to PEI, as of the Effective Date, that, except as MERRIMACK has disclosed to PEI as of the Effective Date:

(a) MERRIMACK exclusively owns or otherwise Controls all of the rights, title and interest in and to the MERRIMACK Licensed Technology necessary to grant, and has the right to grant, all rights and licenses it purports to grant to PEI with respect to the MERRIMACK Licensed Technology under this Agreement;

(b) Neither MERRIMACK nor any of its Affiliates has granted any right or license, to any Third Party relating to any of the MERRIMACK Licensed Technology, that would conflict with, or limit the scope of, any of the rights or licenses granted to PEI hereunder;

(c) Neither MERRIMACK nor any of its Affiliates has granted any liens or security interests on the MERRIMACK Licensed Technology;

(d) To MERRIMACK's and its Affiliates' knowledge, after reasonable inquiry with respect to employees of MERRIMACK and its Affiliates, neither MERRIMACK nor any of its Affiliates has (i) employed or used any contractor or consultant that employs any individual or entity debarred or disqualified by the FDA (or subject to a similar sanction by any Regulatory Authority outside the United States) or, (ii) employed any individual or entity that is the subject of an FDA debarment or disqualification investigation or proceeding (or similar proceeding by any Regulatory Authority outside the United States), in each of clauses (i) and (ii) in the conduct of Development activities directed to the Licensed Compound or the Licensed Product;

(e) (i) neither MERRIMACK nor any of its Affiliates has received any written allegation from a Third Party that any of the MERRIMACK Patent Rights is invalid or unenforceable and (ii) neither MERRIMACK nor any of its Affiliates has received any written notice that any MERRIMACK Patent Right is subject to interference, reexamination, reissue, revocation, opposition, appeal or other administrative proceedings;

(f) Neither MERRIMACK nor any of its Affiliates has received, with respect to the MERRIMACK Patent Rights or the MERRIMACK Know-How, any written notice of infringement or misappropriation or any other written communication relating to a possible infringement or misappropriation of any Patent Rights or any Know-How Controlled by a Third Party with respect to the Licensed Compound or the Licensed Product;

(g) MERRIMACK and its Affiliates have taken reasonable measures to protect the confidentiality of the MERRIMACK Know-How, and, to MERRIMACK's and its Affiliates' knowledge, no event has occurred which has resulted in the unauthorized use or disclosure of the MERRIMACK Know-How by MERRIMACK, its Affiliates or any of their personnel of any material part of the MERRIMACK Know-How or which otherwise resulted in any material part of the MERRIMACK Know-How entering the public domain; and

(h) To MERRIMACK's and its Affiliates' knowledge, MERRIMACK and its Affiliates have disclosed or made available to PEI, on or before the Effective Date, all material information and data in its possession and not obtained from PEI regarding the Licensed Compound, the Licensed Product, the MERRIMACK Patent Rights in the MERRIMACK Territory and the MERRIMACK Know-How.

Section 12.4 Mutual Covenants. Each Party hereby covenants to the other Party that:

(a) All employees of such Party or its Affiliates working under this Agreement will be under confidentiality obligations consistent with Article XI and the obligation to assign all right, title and interest in and to their inventions and discoveries arising in the performance of such work, whether or not patentable, to such Party as the sole owner thereof;

(b) To its knowledge, such Party will not (i) employ or use any contractor or consultant that employs any individual or entity debarred or disqualified by the FDA (or subject to a similar sanction by any Regulatory Authority outside the United States) or, (ii) employ any individual who or entity that is the subject of an FDA debarment or disqualification investigation or proceeding (or similar proceeding by any Regulatory Authority outside the United States), in each of clauses (i) and (ii) in the conduct of its activities under this Agreement;

(c) Such Party shall perform its activities pursuant to this Agreement in compliance in all material respects with applicable Laws;

(d) Each Party will, in performing its obligations under this Agreement, comply in all material respects with all applicable FDA and other current international regulatory requirements and standards, including FDA's current Good Manufacturing Practices, Good Laboratory Practices, and Good Clinical Practices, and comparable foreign regulatory standards, and other applicable rules, regulations and requirements;

(e) Neither Party shall, during the Term, grant any right or license to any Third Party or take any other action, or permit any action to be taken, relating to any of the intellectual property rights it owns or Controls as of the Effective Date or thereafter which would conflict with, or limit the scope of, any of the rights or licenses granted or to be granted to the other Party hereunder; and

(f) Neither Party shall permit any agreement (including, with respect to MERRIMACK, the 2005 License Agreement) or arrangement under which such Party owns or otherwise Controls (other than pursuant to this Agreement) Licensed Technology to be modified or terminated (in whole or in part) in a manner that adversely affects the other Party's rights under this Agreement without the other Party's prior written consent.

Section 12.5 DISCLAIMER. EXCEPT AS OTHERWISE EXPRESSLY SET FORTH IN THIS AGREEMENT, NEITHER PARTY MAKES ANY REPRESENTATION OR EXTENDS ANY WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY THAT ANY PATENTS ARE VALID OR ENFORCEABLE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, EACH PARTY DISCLAIMS ANY WARRANTIES WITH REGARDS TO: (A) THE SUCCESS OF ANY STUDY OR TEST COMMENCED UNDER THIS AGREEMENT; (B) THE SAFETY OR USEFULNESS FOR ANY PURPOSE OF THE TECHNOLOGY OR MATERIALS, INCLUDING ANY COMPOUNDS, IT PROVIDES OR DISCOVERS UNDER THIS AGREEMENT; OR (C) THE VALIDITY, ENFORCEABILITY OR NON-INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHTS OR TECHNOLOGY IT PROVIDES OR LICENSES TO THE OTHER PARTY UNDER THIS AGREEMENT.

Article XIII
Term and Termination

Section 13.1 Term. This Agreement shall become effective as of the Effective Date and will remain in effect unless all rights granted to both Parties are terminated as set forth in this Article XIII, (the "Term").

Section 13.2 Survival of Licenses upon Expiration of Royalty Term in a Country. Notwithstanding anything herein, on a country-by-country basis:

(a) upon the expiration of all royalty payment obligations of MERRIMACK hereunder for the Licensed Product in a country in the MERRIMACK Territory at the end of the applicable Royalty Term (but not upon a termination of MERRIMACK's rights and licenses hereunder in such country prior to the end of the applicable Royalty Term), the licenses granted to MERRIMACK in Section 8.2(a) shall be deemed to be perpetual, fully paid-up and irrevocable with respect to the Licensed Product in such country;

(b) upon the earliest of (i) expiration of all royalty payment obligations of MERRIMACK hereunder for the Licensed Product in all Major Asian Countries and Major EU Countries if MERRIMACK's rights and licenses hereunder in such countries have not been

terminated prior to such expiration, (ii) expiration of all royalty payment obligations of both MERRIMACK and PEI hereunder for the Licensed Product in all Major Asian Countries and Major EU Countries if MERRIMACK's rights and licenses hereunder in one or more of such countries have been terminated prior to the expiration of MERRIMACK's royalty payment obligations hereunder in one or more of such countries or (iii) the termination of PEI's rights and licenses hereunder in the PEI Territory (but, as to each of the foregoing clauses (i), (ii) and (iii), not following a termination of MERRIMACK's rights and licenses hereunder in the MERRIMACK ROW Territory prior thereto), the licenses granted to MERRIMACK in Section 8.2(a) shall be deemed to be perpetual, fully paid-up and irrevocable with respect to the Licensed Product in the MERRIMACK ROW Territory;

(c) upon the expiration or earlier termination of all royalty payment obligations of MERRIMACK hereunder for the Licensed Product in all Major Asian Countries and Major EU Countries (but not following a termination of PEI's rights and licenses hereunder in the PEI Territory prior to the end of such Royalty Terms pursuant to Section 13.3(a)(iii)), the licenses granted to PEI in Section 8.1(a) shall be deemed to be perpetual and irrevocable with respect to the Licensed Product in the PEI Territory; and

(d) in the event PEI receives licenses in what was formerly the MERRIMACK Territory under Section 13.5(b)(i)(D) or Section 13.5(b)(i)(E) then, upon the expiration of all royalty payment obligations of PEI hereunder for the Licensed Product in a country at the end of the applicable Terminated Territory Royalty Term (but not upon a termination of PEI's rights and licenses hereunder in such country prior to the end of the applicable Terminated Territory Royalty Term), the licenses granted to PEI under Section 13.5(b)(i)(D) or Section 13.5(b)(i)(E) shall be deemed to be perpetual, fully paid-up and irrevocable with respect to the Licensed Product in such country.

Section 13.3 Termination for Material Breach.

(a) Upon any material breach of this Agreement by a Party (in such capacity, the "Breaching Party"), the other Party (in such capacity, the "Non-Breaching Party") may deliver notice of such breach to the Breaching Party. If the Breaching Party fails to cure such breach within the [**] day period after delivery of such notice, then, upon written notice from the Non-Breaching Party to the Breaching Party, and subject to Section 13.3(b), (i) if MERRIMACK is the Breaching Party and such material breach relates to activity in, or otherwise materially affects, the MERRIMACK Asia Territory and/or the MERRIMACK Europe Territory, this Agreement will, subject to Section 13.2(a), terminate in accordance with Section 13.5(b) with respect to, as applicable, the MERRIMACK Asia Territory and/or the MERRIMACK Europe Territory to the extent the activity relating to the material breach took place in or otherwise materially affected the MERRIMACK Asia Territory and/or the MERRIMACK Europe Territory; (ii) if MERRIMACK is the Breaching Party and such material breach is a MERRIMACK ROW Territory Breach that relates to activity in, or otherwise materially affects, the MERRIMACK ROW Territory, this Agreement will, subject to Section 13.2(b), terminate with respect to the MERRIMACK ROW Territory in accordance with Section 13.5(b); or (iii) if PEI is the Breaching Party, this Agreement will, subject to Section 13.2(c) and 13.2(d), terminate in accordance with Section 13.5(a).

(b) If a Party gives notice of termination under this Section 13.3, and the other Party disputes whether such termination is proper, then the issue of whether or not such termination is proper may be submitted by either Party for resolution in accordance with Article XIV (provided that the Parties will not be required to repeat any steps in the process set forth in Article XIV that the Parties have already completed in the course of discussions regarding the alleged material breach that is the basis for the notice of termination), and this Agreement shall remain in full force and effect until such dispute is resolved.

(i) In the event such dispute is submitted for arbitration, the arbitrators will be instructed that, if the arbitrators find that the Breaching Party disputed such termination in good faith, and the arbitrators render an award finding the Breaching Party is in material breach of this Agreement, the arbitrators shall include in such award (A) an explanation of what specific steps the Breaching Party is required to follow in order to cure such material breach and (B) a time period that is as short as practicable during which the Breaching Party may cure such material breach in order to avoid termination. If the Breaching Party promptly and diligently complies with such arbitration award after the arbitration award upholding such basis for termination is issued, then this Agreement shall remain in full force and effect. If the Breaching Party does not promptly and diligently comply with such arbitration award, then this Agreement (either with respect to one or more Terminated Territories or in its entirety, as applicable) shall terminate based on such material breach as provided in Section 13.3(a) and the Breaching Party shall have no further right to cure such material breach. The arbitration award shall also provide that, if there is a dispute whether the Breaching Party has promptly and diligently complied with such arbitration award, then either Party may submit such dispute to the arbitrators who made the award for an expedited determination of whether the Breaching Party has promptly and diligently complied with such arbitration award.

(ii) If as a result of the dispute resolution process it is determined that the Breaching Party is in material breach of this Agreement and did not dispute termination in good faith, this Agreement (either with respect to one or more Terminated Territories or in its entirety, as applicable) shall terminate as provided in Section 13.3(a).

(iii) If as a result of the dispute resolution process it is determined that the notice of termination was improper, then no termination shall have occurred and this Agreement shall remain in full force and effect.

Section 13.4 Termination for Convenience. MERRIMACK shall have the right to terminate this Agreement with respect to the MERRIMACK Europe Territory, the MERRIMACK Asia Territory, the MERRIMACK ROW Territory, or some or all of them, effective at any time following the second anniversary of the Effective Date, for any or no reason. MERRIMACK shall give PEI ninety (90) days prior written notice of any such termination.

Section 13.5 Effect of Termination.

(a) If this Agreement is terminated by MERRIMACK for PEI's material breach under Section 13.3, then, subject to Section 13.2, the following provisions shall apply, effective as of the effective date of termination:

(i) The rights and licenses granted by MERRIMACK to PEI under Section 8.1 will automatically terminate, and PEI will immediately cease all activities that involve the use of any MERRIMACK Licensed Technology or anything based on any MERRIMACK Licensed Technology, except any such activities that are necessary to protect the health, safety and welfare of subjects in any Clinical Trial that is ongoing as of the date of termination;

(ii) the MERRIMACK Territory shall be expanded to include the PEI Territory, but MERRIMACK will have no diligence obligations with respect to the Development and Commercialization of the Licensed Compound and the Licensed Product in or for the PEI Territory and, notwithstanding anything to the contrary in Section 8.2, Article IX, Section 13.5(a)(iii) or Section 13.5(a)(vi), MERRIMACK will have [**] with respect to the Licensed Compound or the Licensed Product in the PEI Territory;

(iii) PEI hereby grants to MERRIMACK, exercisable from and after the effective date of the termination of this Agreement, an exclusive, perpetual, irrevocable, royalty-free, fully paid-up license, with the right to grant sublicenses, under the PEI Licensed Technology and PEI's interest in the Joint Technology, to research, have researched, develop, have developed, make, have made, use, offer for sale, sell, have sold, import and export the Licensed Compound and the Licensed Product in the Field in the PEI Territory;

(iv) the royalty obligations of MERRIMACK under Article IX shall be reduced to [**] percent ([**]%) of the royalty amounts otherwise payable by MERRIMACK under Article IX, but, for the avoidance of doubt, such reduction shall not apply to [**], and MERRIMACK will have no further diligence obligations with respect to the Development and Commercialization of the Licensed Compound and the Licensed Product in or for the MERRIMACK Territory;

(v) PEI shall promptly transfer and assign possession, ownership and control to MERRIMACK of all Regulatory Approvals and Regulatory Documentation and other technical and other information and materials in PEI's Control that are necessary or useful for the Development, manufacture or Commercialization of the Licensed Compound or the Licensed Product and shall cooperate with MERRIMACK in the notification of all applicable Regulatory Authorities in connection with such transfer; and

(vi) subject to Section 13.6, and except as otherwise provided above in this Section 13.5(a), the Parties will have no further rights or obligations under this Agreement, except that the following provisions will survive such termination in accordance with their terms: Article I, Article II, Section 4.2(d)(ii), Section 4.2(d)(iii)(A), Section 4.2(d)(iii)(C), Section 4.6(b), Section 8.2(a), Section 8.2(b)(ii), Section 8.3, Section 8.4(a)(ii) and Section 8.4(b)(ii) (in accordance with their terms; provided that the obligations under Section 8.4(a)(ii) and Section 8.4(b)(ii), to the extent not expiring sooner in accordance with their terms, shall terminate on the [**] anniversary of the effective date of such termination), Section 8.5, Section 8.6, Article IX (as modified above in this Section 13.5(a)), Section 10.1, Section 10.2 and Section 10.3 (except with regard to PEI's right to Prosecute and Maintain and enforce the MERRIMACK Patent Rights in the PEI Territory or to share in any recoveries related to such enforcement under

Section 10.3(e)), Article XI, Section 12.5, Section 13.2, Section 13.5, Section 13.6, Article XIV, Article XV and Article XVI.

(b) If this Agreement is terminated by PEI in its entirety or with respect to some but not all of the MERRIMACK Asia Territory, the MERRIMACK Europe Territory or the MERRIMACK ROW Territory for MERRIMACK'S material breach under Section 13.3, or by MERRIMACK under Section 13.4 in its entirety or with respect to some but not all of the MERRIMACK Asia Territory, the MERRIMACK Europe Territory or the MERRIMACK ROW Territory, then, subject to Section 13.2, the following provisions shall apply, effective as of the effective date of termination:

(i) If the Terminated Territory includes some or all of the MERRIMACK Territory then, with regard only to those portions of the MERRIMACK Territory that are part of the Terminated Territory (and not with respect to the MERRIMACK ROW Territory):

(A) such portions of the Terminated Territory will no longer be part of the MERRIMACK Territory, the rights and licenses granted by PEI to MERRIMACK under Section 8.2 with respect to such Terminated Territory will automatically terminate, and MERRIMACK will immediately cease all activities that involve the use of any PEI Licensed Technology or anything based on any PEI Licensed Technology in or for such Terminated Territory, except any such activities that are necessary to protect the health, safety and welfare of subjects in any Clinical Trial that is ongoing as of the date of termination;

(B) the PEI Territory will be expanded to include such Terminated Territory, but PEI will have no diligence obligations with respect to the Development and Commercialization of the Licensed Compound and the Licensed Product in or for such Terminated Territory and, notwithstanding anything to the contrary in Section 8.1, PEI will have the royalty obligations set forth below in Sections 13.5(b)(i)(D) and 13.5(b)(i)(E), as applicable;

(C) MERRIMACK shall grant to PEI, exercisable from and after the effective date of the termination of this Agreement with respect to such Terminated Territory, an exclusive, perpetual, irrevocable, royalty-bearing (as provided in Section 13.5(b)(i)(D) and Section 13.5(b)(i)(E)) license, with the right to grant sublicenses, under the MERRIMACK Licensed Technology and MERRIMACK's interest in the Joint Technology, in such Terminated Territory to research, have researched, develop, have developed, make, have made, use, offer for sale, sell, have sold import and export the Licensed Compound and the Licensed Product in the Field in such Terminated Territory;

(D) if such Terminated Territory includes the MERRIMACK Asia Territory, PEI shall pay MERRIMACK a royalty of [**] percent ([**]%) of Net Sales (for such purposes, with PEI substituted for MERRIMACK in the definition of Net Sales) of the Licensed Product in the MERRIMACK Asia Territory in accordance with the terms and conditions of Article IX (for such purposes, with PEI substituted for MERRIMACK and MERRIMACK substituted for PEI and the Terminated Territory Royalty Term substituted for

the Royalty Term) provided that, for clarity, PEI will have [**] to pay any milestones to MERRIMACK;

(E) if such Terminated Territory includes the MERRIMACK Europe Territory, PEI shall pay MERRIMACK a royalty of [**] percent ([**]%) of Net Sales (for such purposes, with PEI substituted for MERRIMACK in the definition of Net Sales) of the Licensed Product in the MERRIMACK Europe Territory in accordance with the terms and conditions of Article IX (for such purposes, with PEI substituted for MERRIMACK and MERRIMACK substituted for PEI and the Terminated Territory Royalty Term substituted for the Royalty Term); provided that, for clarity, PEI will have [**] to pay any milestones to MERRIMACK; and

(F) subject to MERRIMACK's retained license rights outside of such Terminated Territory, MERRIMACK shall promptly transfer and assign possession, ownership and control to PEI of all Regulatory Approvals for the Licensed Product in such Terminated Territory and any Regulatory Documentation and other technical and other information and materials in MERRIMACK's Control that are necessary or useful for the Development, manufacture or Commercialization of the Licensed Compound or the Licensed Product solely in such Terminated Territory, and shall cooperate with PEI in the notification of all applicable Regulatory Authorities in connection with such transfer.

(ii) If the Terminated Territory includes the MERRIMACK ROW Territory then, with regard only to the MERRIMACK ROW Territory, the rights and licenses granted by PEI to MERRIMACK under Section 8.2 with respect to the MERRIMACK ROW Territory will automatically terminate, and MERRIMACK will immediately cease all activities that involve the use of any PEI Licensed Technology or anything based on PEI Licensed Technology in or for the MERRIMACK ROW Territory, except any such activities that are necessary to protect the health, safety and welfare of subjects in any Clinical Trial that is ongoing as of the date of termination.

(iii) In addition, if the Terminated Territory includes the entire MERRIMACK Territory and the MERRIMACK ROW Territory, MERRIMACK will assign back to PEI, without any additional compensation to MERRIMACK, its one-half undivided interest in the Licensed Compound Information and Manufacturing Information assigned by PEI to MERRIMACK pursuant to Section 4.2(d)(ii).

(iv) With regard to the entire Terminated Territory, subject to Section 13.6, and except as otherwise provided above in this Section 13.5(b), the Parties will have no further rights or obligations under this Agreement with regard to such Terminated Territory, except that the following provisions will survive such termination in accordance with their terms: Article I, Article II, Section 4.2(d)(iii)(B), Section 4.2(d)(iii)(C), Section 4.6(b), Section 8.1(a), Section 8.1(b)(ii), Section 8.3, Section 8.4(a)(i) (but only to the extent MERRIMACK retains rights to the PEI Licensed Technology in one or more countries outside the PEI Territory as expanded pursuant to Section 13.5(b)(i)(B)), Section 8.4(b)(i), Section 8.4(a)(ii) and Section 8.4(b)(ii) (in accordance with their terms; provided that the obligations under Section 8.4(a)(ii) and Section 8.4(b)(ii), to the extent not expiring sooner in accordance with their terms, shall terminate on the [**] anniversary of the effective date of such termination), Section 8.5, Section

8.6, Article IX (with regard to accrued but unpaid amounts due to PEI from MERRIMACK relating to portions of the Terminated Territory that were formerly part of the MERRIMACK Territory, and any royalty obligations of PEI under Section 13.5(b)(i)(D) and Section 13.5(b)(i)(E)), Section 10.1, Section 10.2 and Section 10.3 (except with regard to MERRIMACK's right to Prosecute, Maintain and enforce the PEI Patents Rights in the Terminated Territory or to share in any recoveries related to such enforcement under Section 10.3(e)), Article XI, Section 12.5, Section 13.2, Section 13.5, Section 13.6, Article XIV, Article XV and Article XVI.

Section 13.6 Accrued Rights. The termination of this Agreement shall not relieve the Parties of any obligation accruing prior to such termination. Any termination of this Agreement shall be without prejudice to the rights of either Party against the other accrued or accruing under this Agreement prior to termination, including the obligation to pay royalties for the Licensed Product sold prior to such termination. Termination of this Agreement shall be in addition to, and shall not prejudice, the Parties' remedies at law or in equity, including the Parties' ability to receive legal damages or equitable relief with respect to any breach of this Agreement, regardless of whether or not such breach was the reason for the termination.

Article XIV
Dispute Resolution

Section 14.1 Disputes; Executive Officers.

(a) In the event any dispute arises out of or in relation to or in connection with this Agreement, including failure to perform under or breach of, this Agreement or any issue relating to the interpretation or application of this Agreement, the Parties shall use good faith efforts to resolve such dispute within thirty (30) days after a Party notifies the other Party of such dispute, whether through the JDC, JMC or JSC, as applicable, if the dispute is within the responsibilities of such a committee, or otherwise. If the Parties are unable to resolve such dispute, at the JDC, JMC or JSC level or otherwise, within such thirty (30) day period, either Party may, by written notice to the other Party refer such dispute to the Executive Officers for resolution, and such Executive Officers shall attempt in good faith to resolve such dispute within thirty (30) days after such notice, except for any dispute concerning inventorship arising under Section 10.1(c), which shall not be subject to resolution by the Executive Officers under this Section 14.1 or by binding arbitration under Section 14.2, but shall instead be resolved by independent patent counsel as set forth in Section 10.1(c).

(b) In addition, any dispute with respect to which MERRIMACK has final decision-making authority pursuant to Section 3.1(e) (each, a "Non-Arbitrable Dispute"), shall not be subject to resolution by binding arbitration under Section 14.2. Any dispute with respect to which MERRIMACK has final decision-making authority pursuant to Section 3.1(e) if unresolved at the JSC level or by the Executive Officers after escalation to the Executive Officers, shall instead be resolved by MERRIMACK (subject to any limitations on such authority set forth in Section 3.1(e)).

(c) For purposes of clarity, all disputes arising under or relating to this Agreement (other than disputes concerning inventorship which shall be resolved in accordance with Section 10.1(c)), or the interpretation thereof, shall be referred to the Executive Officers for resolution

within the thirty (30) day period set forth in this Section 14.1 above and, if the Executive Officers are unable to resolve such dispute within such thirty (30) day period, such matter shall be resolved by binding arbitration pursuant to Section 14.2 unless such dispute is a Non-Arbitrable Dispute (which shall be resolved in accordance with clause (b) above).

Section 14.2 Arbitration. If the Executive Officers are unable to resolve a given dispute referred to such Executive Officers pursuant to Section 14.1 within thirty (30) days following such referral of such dispute to such Executive Officers, except for any Non-Arbitrable Disputes, either Party may have the given dispute settled by binding arbitration in the manner described below:

(a) Arbitration Request. If a Party intends to begin an arbitration to resolve a dispute arising under this Agreement, such Party shall provide written notice (the "Arbitration Request") to the other Party of such intention and the issues for resolution.

(b) Additional Issues. Within ten (10) days after the receipt of the Arbitration Request, the other Party may, by written notice, add additional issues for resolution.

(c) Arbitration Location; Rules. Except as expressly provided herein, the sole mechanism for resolution of any claim, dispute or controversy arising out of or in connection with or relating to this Agreement or the breach or alleged breach thereof shall be arbitration by the London Court of International Arbitration ("LCIA") in London, England, or in such other venue as the Parties agree, under the Arbitration Rules of the LCIA then in effect except as provided herein.

(d) English Language. All proceedings shall be held in English and a transcribed record prepared in English. Documents submitted in the arbitration (the originals of which are not in English) shall be submitted together with a reasonably complete and accurate English translation.

(e) Selection of Arbitrators. The Parties shall each choose one arbitrator within thirty (30) days after receipt of notice of the intent to arbitrate and the said two arbitrators shall select by mutual agreement a third arbitrator within thirty (30) days after they have been selected as arbitrators. If no arbitrator is appointed within the times herein provided or any extension of time that is mutually agreed on, the LCIA shall make such appointment (i.e. shall appoint three arbitrators) within thirty (30) days after such failure. Additionally, if the two arbitrators selected by the Parties fail to appoint a third arbitrator within the time provided, the LCIA shall appoint the third arbitrator.

(f) Experience. If the issues in dispute involve scientific or technical matters, any arbitrators chosen hereunder shall have educational training or experience sufficient to demonstrate a reasonable level of knowledge in the pharmaceutical and biotechnology fields.

(g) Time Schedule. Within thirty (30) days after initiation of arbitration, the Parties shall reach agreement upon and thereafter follow procedures directed at assuring that the arbitration will be concluded and the final award rendered within no more than six (6) months

from selection of the three arbitrators. Failing such agreement, the LCIA will design and the Parties will follow procedures directed at meeting such a time schedule.

(h) Powers of Arbitrators. The arbitrators shall be limited in the scope of their authority to resolving only the specific matter which the Parties have referred to arbitration for resolution and shall not have authority to render any decision or award on any other issues; provided that, if the arbitrator renders an award finding either Party in material breach of this Agreement and the dispute was in good faith, the arbitrator shall include in such award an explanation of what specific steps such Party is required to follow in order to cure such material breach after such arbitration award is rendered as provided in Section 13.3(b). Without limiting the foregoing, the arbitrators:

(i) shall not have any power or authority to add to, alter, amend or modify the terms of this Agreement but shall specify rules sufficient to allow reasonable discovery by the Parties;

(ii) shall establish and enforce appropriate rules to ensure that the proceedings, including the decision, be kept confidential and that all Confidential Information of the Parties be kept confidential and be used for no purpose other than the arbitration;

(iii) shall have the power to enforce specifically this Agreement and the terms and conditions hereof in addition to any other remedies at law or in equity; and

(iv) shall issue all preliminary awards and the final award writing.

(i) Injunctive Relief. Nothing in this Agreement shall be deemed as preventing either Party from seeking injunctive relief (or any other provisional remedy such as temporary restraining order, preliminary injunction or other interim equitable relief) from the arbitrators or from any court having jurisdiction over the Parties (and prior to or during any arbitration if necessary to protect the interests of such Party in avoiding irreparable harm or to preserve the status quo pending the arbitration proceeding) and the subject matter of the dispute as necessary to protect either Party's name, proprietary information, trade secrets, know-how or any other proprietary right or otherwise to avoid irreparable harm.

(j) Costs; Exclusion from Award. The award rendered by the arbitrators shall not include costs of arbitration, attorneys' fees or costs for expert and other witnesses, which shall be the responsibility of each Party (i.e. each Party shall bear its own costs and expenses), except that the Parties shall share equally the fees of the arbitrators.

(k) Judgment. Judgment on the award rendered by the arbitrators may be entered in any court having jurisdiction thereof pursuant to the United Nations Convention on the Recognition and Enforcement of Foreign Arbitral Awards.

(l) Survivability. Any duty to arbitrate under this Agreement shall remain in effect and be enforceable after termination of this Agreement.

Article XV
Indemnification

Section 15.1 Indemnification by MERRIMACK. MERRIMACK shall indemnify, defend and hold harmless PEI and its Affiliates, and its and their respective directors, officers, employees and agents, from and against any and all liabilities, damages, losses, costs and expenses, including the reasonable fees of attorneys and other professional Third Parties (collectively, "Losses"), arising out of or resulting from any and all Third Party suits, claims, actions, proceedings or demands ("Claims") based upon:

(a) the negligence, recklessness or wrongful intentional acts or omissions of MERRIMACK or its Affiliates and its or their respective directors, officers, employees and agents, in connection with MERRIMACK's performance of its obligations or exercise of its rights under this Agreement;

(b) any breach of any representation, warranty or covenant made by MERRIMACK under this Agreement; or

(c) the Development activities that are actually conducted by or on behalf of MERRIMACK, the handling and storage by or on behalf of MERRIMACK of any chemical agents or other compounds for the purpose of conducting Development by or on behalf of MERRIMACK, and the manufacture or Commercialization by MERRIMACK, its Affiliates or sublicensees (other than PEI) of the Licensed Compound or the Licensed Product, including any product liability, personal injury, property damage or other damage, in each case resulting from any of the foregoing activities described in this Section 15.1.

Section 15.2 Indemnification by PEI. PEI shall indemnify, defend and hold harmless MERRIMACK and its Affiliates, and its or their respective directors, officers, employees and agents, from and against any and all Losses, arising out of or resulting from any and all Third Party Claims based upon:

(a) the negligence, recklessness or wrongful intentional acts or omissions of PEI or its Affiliates or its or their respective directors, officers, employees and agents, in connection with PEI's performance of its obligations or exercise of its rights under this Agreement;

(b) any breach of any representation, warranty or covenant made by PEI under this Agreement; or

(c) the Development activities that are actually conducted by or on behalf of PEI, the handling and storage by or on behalf of PEI of any chemical agents or other compounds for the purpose of conducting Development by or on behalf of PEI, the manufacture or Commercialization by PEI, its Affiliates or sublicensees of the Licensed Compound or the Licensed Product, including any product liability, personal injury, property damage or other damage, in each case resulting from any of the foregoing activities described in this Section 15.2.

Section 15.3 Procedure.

(a) A Person entitled to indemnification under this Article XV (an "Indemnified Party") shall give prompt written notification to the Person from whom indemnification is sought (the "Indemnifying Party") of the commencement of any action, suit or proceeding relating to a Third Party Claim for which indemnification may be sought or, if earlier, upon the assertion of any such Claim by a Third Party (it being understood and agreed, however, that the failure by an Indemnified Party to give notice of a Third-Party Claim as provided in this Section 15.3 shall not relieve the Indemnifying Party of its indemnification obligation under this Agreement except and only to the extent that such Indemnifying Party is actually damaged as a result of such failure to give notice).

(b) Within twenty (20) days after delivery of such notification, the Indemnifying Party may, upon written notice thereof to the Indemnified Party, assume control of the defense of such action, suit, proceeding or claim with counsel reasonably satisfactory to the Indemnified Party.

(c) If the Indemnifying Party does not assume control of such defense, the Indemnified Party shall control such defense and, without limiting the Indemnifying Party's indemnification obligations, the Indemnifying Party shall reimburse the Indemnified Party for all costs and expenses, including reasonable attorney's fees, incurred by the Indemnified Party in defending itself within thirty (30) days after receipt of any invoice therefor from the Indemnified Party.

(d) The Party not controlling such defense may participate therein at its own expense; provided that, if the Indemnifying Party assumes control of such defense and the Indemnified Party in good faith concludes, based on advice from counsel, that the Indemnifying Party and the Indemnified Party have conflicting interests with respect to such action, suit, proceeding or claim, the Indemnifying Party shall be responsible for the reasonable fees and expenses of counsel to the Indemnified Party in connection with its participation in the defense action.

(e) The Party controlling such defense shall keep the other Party advised of the status of such action, suit, proceeding or claim and the defense thereof and shall consider recommendations made by the other Party with respect thereto.

(f) The Indemnified Party shall not agree to any settlement of such action, suit, proceeding or claim without the prior written consent of the Indemnifying Party, which shall not be unreasonably withheld, delayed or conditioned. The Indemnifying Party shall not agree to any settlement of such action, suit, proceeding or claim or consent to any judgment in respect thereof that does not include a complete and unconditional release of the Indemnified

Party from all liability with respect thereto, that imposes any liability or obligation on the Indemnified Party or that acknowledges fault by the Indemnified Party without the prior written consent of the Indemnified Party.

Section 15.4 Insurance. Each Party shall procure and maintain, and cause its Affiliates, licensees and sublicensees conducting activities under the rights granted under this Agreement to procure and maintain, insurance, including product liability insurance that includes clinical trial insurance, adequate to cover its obligations and liabilities hereunder and which are in amounts

and coverages that are at least consistent with normal business practices of comparable companies with respect to similar obligations and liabilities, at all times during which the Licensed Compound or the Licensed Product are clinically tested or commercially distributed or sold by or on behalf of such Party or its Affiliates. The costs of such insurance will be borne by the Party obtaining such insurance, except to the extent that such costs qualify as Development Costs. It is understood that such insurance shall not be construed to create any limit of either Party's obligations or liabilities with respect to its indemnification obligations hereunder. Each Party shall provide the other, upon request, with evidence of such insurance.

Section 15.5 Exclusion of Consequential Damages. NEITHER PARTY WILL BE LIABLE UNDER ANY LEGAL THEORY (WHETHER TORT, CONTRACT OR OTHERWISE) FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES ARISING OUT OF OR RELATED TO THIS AGREEMENT OR THE EXERCISE OF ITS RIGHTS HEREUNDER, INCLUDING LOST PROFITS ARISING FROM OR RELATING TO ANY BREACH OF THIS AGREEMENT, REGARDLESS OF ANY NOTICE OF SUCH DAMAGES, EXCEPT AS A RESULT OF A MATERIAL BREACH OF THE CONFIDENTIALITY AND NON-USE OBLIGATIONS IN ARTICLE XI. NOTHING IN THIS SECTION 15.5 IS INTENDED TO LIMIT OR RESTRICT THE INDEMNIFICATION RIGHTS OR OBLIGATIONS OF EITHER PARTY UNDER THIS ARTICLE XV.

Article XVI
Miscellaneous Provisions

Section 16.1 Governing Law. Except for matters of intellectual property law, which shall be determined in accordance with the national intellectual property laws relevant to the intellectual property in question, this Agreement, and any disputes between the Parties relating to the subject matter of this Agreement, shall be construed and the respective rights of the Parties hereto determined according to the substantive laws of the State of New York, excluding (a) any conflicts of laws principles that would lead to the application of the laws of another jurisdiction; (b) the United Nations Conventions on Contracts for the International Sale of Goods; (c) the 1974 Convention on the Limitation Period in the International Sale of Goods (the "1974 Convention"); and (d) the Protocol amending the 1974 Convention, done at Vienna April 11, 1980.

Section 16.2 Assignment. Neither PEI nor MERRIMACK may assign this Agreement in whole or in part without the prior written consent of the other, except:

(a) Either Party may assign this Agreement or any of its rights or obligations pursuant to this Agreement to an Affiliate of such Party without obtaining the prior written consent of, but with written notice to, the other Party; and

(b) Either Party may assign this Agreement without the prior written consent of, but with written notice to, the other Party if in connection with the merger, sale or transfer of all or substantially all of the stock, assets or business of such assigning Party to which the subject matter of this Agreement pertains.

The assigning Party shall remain primarily liable for the performance of this Agreement notwithstanding any such assignment of this Agreement. Any assignment made other than in accordance with the immediately preceding sentence shall be wholly void and invalid, and the assignee in any such assignment shall acquire no rights whatsoever, and the non-assigning Party shall not recognize, nor shall it be required to recognize, such assignment. This Section 16.2 limits both the right and the power to assign this Agreement and/or rights under this Agreement. This Agreement shall be binding upon, and shall inure to the benefit of, all permitted successors and assigns.

Section 16.3 Entire Agreement; Amendments; Amendment of Letter Agreement.

(a) This Agreement constitutes the entire agreement between the Parties with respect to the subject matter hereof and, except as provided in Section 16.3(b), supersedes all previous arrangements with respect to the subject matter hereof, whether written or oral, including the term sheet between Merrimack Parent and PEI dated February 18, 2011. Any amendment or modification to this Agreement must be made in writing signed by both Parties.

(b) The Parties agree that the Letter Agreement dated March 24, 2011 between PEI and Merrimack Parent survives but is hereby amended by (i) deleting Paragraph 4 of such Letter Agreement, and (ii) deleting Paragraph 6 of such Letter Agreement and replacing it with the following: "Any dispute arising out of or in connection with this Letter Agreement, including any dispute regarding its validity or termination, shall be resolved by the parties in accordance with Article XIV of the Assignment, Sublicense and Collaboration Agreement dated May 5, 2011 between PharmaEngine and Merrimack's wholly-owned subsidiary, Merrimack Pharmaceuticals (Bermuda) Ltd., and Merrimack agrees that it will have the rights and be bound by the obligations of Merrimack Pharmaceuticals (Bermuda) Ltd. under such provisions." In addition, MERRIMACK acknowledges and agrees that exercise by Merrimack Parent of its right to conduct a Phase II clinical trial instead of a Phase III clinical trial under the last sentence of Paragraph 1 of such Letter Agreement will not fulfill MERRIMACK's obligations under Section 4.3(a)(ii) of this Agreement.

Section 16.4 Notices. Any notice required or provided for by the terms of this Agreement shall be in writing and shall be sufficient if (a) delivered personally or (b) sent by registered or certified mail, return receipt requested, or reputable international business courier, in each case properly addressed to a Party as set forth below. The effective date of notice shall be the actual date of receipt by the Party receiving the same.

Notices to MERRIMACK shall be addressed to:

Merrimack Pharmaceuticals (Bermuda) Ltd.

Attention: Secretary
c/o Appleby Services (Bermuda) Ltd.
Canon's Court
22 Victoria Street
Hamilton, HM EX
Bermuda

with copies to:

Merrimack Pharmaceuticals, Inc.
One Kendall Square
Suite B7201
Cambridge, MA 02139-1670
USA
Attention: Chief Executive Officer

and

Wilmer Cutler Pickering Hale and Dorr LLP
60 State Street
Boston, Massachusetts 02109
USA
Attention: David E. Redlick, Esq. and
Steven D. Barrett, Esq.
Fax : +1 (617) 526-5000

Notices to PEI shall be addressed to:

PharmaEngine, Inc.
16F, 237, Sung-Chiang Road
Taipei, Taiwan 104
Republic of China
Attention: Selena Kuo
Senior Manager of Contracts and IP
Fax : 886-2-2515-7558

with copies to:

PharmaEngine, Inc.
16F, 237, Sung-Chiang Road
Taipei, Taiwan 104
Republic of China
Attention: C. Grace Yeh, Ph.D.
President and Chief Executive Officer
Fax : 886-2-2515-7558

and

Faber Daeufer & Rosenberg PC
Attn: James McGarrah, Esq.
950 Winter Street, Suite 4500
Waltham, MA 02451
USA

Any Party may change its notification address by giving notice to the other Party in the manner herein provided. For clarity, the additional copy will be addressed for convenience only and the notification shall be deemed to have been validly delivered when addressed to the main addressee.

Section 16.5 Exports. The Parties acknowledge that the export of technical data, materials or products is subject to the exporting Party receiving any necessary export licenses and that the Parties cannot be responsible for any delays attributable to export controls that are beyond the reasonable control of either Party. MERRIMACK and PEI agree not to export or re-export, directly or indirectly, the Licensed Compound or the Licensed Product (or any associated products, information, items, articles, computer software, media, technical data, the direct product of such data, samples or equipment received or generated under this Agreement) in violation of any US export laws or other Laws or regulations that may be applicable. MERRIMACK and PEI agree to obtain similar covenants from their Affiliates, sublicensees and contractors with respect to the subject matter of this Section 16.5.

Section 16.6 Force Majeure. Either Party shall be excused from the performance of its obligations under this Agreement, and no failure or omission by a Party in the performance of any obligation of this Agreement shall be deemed a breach of this Agreement or create any liability if the same shall arise from any cause or causes beyond the control of such Party, (including the following: acts of God; acts or omissions of any government; any rules, regulations or orders issued by any governmental authority or by any officer, department, agency or instrumentality thereof; labor disputes, epidemic, failure

or default of public utilities or common carriers, fire; storm; flood; earthquake; accident; war; rebellion; terrorism; insurrection; riot; and invasion) and such excuse shall be continued so long as the condition constituting force majeure continues; provided that such failure or omission resulting from one of the above causes is cured as soon as is practicable after the end of the occurrence of one or more of the above-mentioned causes. The Party claiming such force majeure shall notify the other Party with notice of the force majeure event as soon as practicable, but in no event longer than five (5) Business Days after its occurrence, which notice shall reasonably identify the affected obligations under this Agreement and the extent to which performance thereof will be affected. In such event, the Parties shall meet or discuss promptly to determine an equitable solution to minimize and if reasonably feasible, overcome, the effects of any such event.

Section 16.7 Performance by Affiliates and Sublicensees. Either Party may use or permit one or more of its Affiliates or permitted sublicensees to exercise such Party's rights or perform such Party's obligations and duties hereunder and may provide such Affiliates or permitted sublicensees with information of the other Party (including Confidential Information of the other Party subject to compliance by such Affiliate or permitted sublicensee with Article XI) for such purposes; provided that the Parties shall remain primarily liable hereunder for the prompt payment and performance of all their respective obligations hereunder. For purposes of clarity, PEI shall not be considered a sublicensee of MERRIMACK for the purposes of this Section 16.7.

Section 16.8 Independent Contractors. It is understood and agreed that the relationship between the Parties hereunder is that of independent contractors and that nothing in this

Agreement shall be construed as authorization for either PEI or MERRIMACK to act for, bind or commit the other in any way.

Section 16.9 Construction. Each Party agrees that this Agreement shall be interpreted without regard to any presumption or rule requiring construction against the Party causing this Agreement to be drafted.

Section 16.10 Interpretation. Any reference in this Agreement to an Article, Section, subsection, paragraph, clause, Schedule or Exhibit shall be deemed to be a reference to any Article, Section, subsection, paragraph, clause, Schedule or Exhibit, of or to, as the case may be, this Agreement. Except where the context clearly otherwise requires, (a) wherever used, the use of any gender will be applicable to all genders, (b) any definition of or reference to any agreement, instrument or other document refers to such agreement, instrument other document as from time to time amended, supplemented or otherwise modified (subject to any restrictions on such amendments, supplements or modifications set forth herein or therein), (c) any reference to any laws refers to such laws as from time to time enacted, repealed or amended, (d) the words "herein", "hereof" and hereunder", and words of similar import, refer to this Agreement in its entirety and not to any particular provision hereof, (e) the words "include", "includes" and "including" shall be deemed to be followed by the phrase "but not limited to", "without limitation" or words of similar import, (f) the word "day" means a calendar day, the word "month" means a calendar month and the word "year" means a Calendar Year, (g) each accounting term used herein that is not specifically defined herein shall have the meaning given to it under applicable Accounting Standards, to the extent consistent with its usage and the other definitions in this Agreement, (h) except where the context otherwise requires, the word "or" is used in the inclusive sense, and (i) all references to "dollars" or "$" herein shall mean US Dollars.

Section 16.11 Headings. The captions or headings of the Sections or other subdivisions hereof are inserted only as a matter of convenience or for reference and shall have no effect on the meaning of the provisions hereof.

Section 16.12 English Language. This Agreement was prepared and is established in the English language, any translation thereof shall be deemed for convenience only and shall never prevail against the original English version. All reports, notices and communications to be exchanged under this Agreement shall be in the English language, provided however that, notwithstanding anything herein to the contrary, neither Party shall be under any obligation to translate into English any document originally established and existing in another language, for the sole purpose of communicating such document to the other Party, it being agreed that such documents will be provided on an as is basis.

Section 16.13 No Implied Waivers; Rights Cumulative. No failure on the part of PEI or MERRIMACK to exercise, and no delay in exercising, any right, power, remedy or privilege under this Agreement, or provided by statute or at law or in equity or otherwise, shall impair, prejudice or constitute a waiver of any such right, power, remedy or privilege or be construed as a waiver of any breach of this Agreement or as an acquiescence therein, nor shall any single or partial exercise of any such right, power, remedy or privilege preclude any other or further exercise thereof or the exercise of any other right, power, remedy or privilege.

Section 16.14 Severability. If, under applicable Law, any provision of this Agreement is held to be invalid or unenforceable, or otherwise directly or indirectly affects the validity of any other material provision(s) of this Agreement (such invalid or unenforceable provision, a "Severed Clause"), this Agreement shall endure except for the Severed Clause. The Parties shall consult one another and use reasonable efforts to agree upon a valid and enforceable provision that is a reasonable substitute for the Severed Clause in view of the objectives contemplated by the Parties when entering into this Agreement and the general balance of the respective interests of the Parties as initially intended under this Agreement.

Section 16.15 Execution in Counterparts. This Agreement may be executed in counterparts, each of which counterparts, when so executed and delivered, shall be deemed to be an original, and all of which counterparts, taken together, shall constitute one and the same instrument.

[*Remainder of This Page Intentionally Left Blank*]

IN WITNESS WHEREOF, the Parties have executed this Assignment, Sublicense and Collaboration Agreement as of the Effective Date.

PHARMAENGINE, INC. **MERRIMACK PHARMACEUTICALS (BERMUDA) LTD.**

By:	/s/ C. Grace Yeh	By:	/s/ Edward J. Stewart
Name:	C. Grace Yeh, Ph.D.	Name:	Edward J. Stewart
Title:	President & CEO	Title:	Vice President

EXHIBIT A
LICENSED COMPOUND

License Compound means (a) the nanoliposomal formulation of CPT-11 known as PEP02 or MM-398, and (b) any modification to such nanoliposomal formulation of CPT-11. CPT-11 means irinotecan [**]. The structure formula of irinotecan is:

[**]

EXHIBIT B-1
[**] CLINICAL TRIAL

Sponsor: [**]

Title:

[**]

Principal investigator:

[**]

Study site:

· [**]

Design:

· [**]

Population:

[**].

Endpoints:

· [**]

Patient number:

· [**]

Status:

[**]

EXHIBIT B-2
[**] CLINICAL TRIAL

Sponsor: [**]

Title:

[**]

Principal investigator:

[**]

Study site:

[**]

Design:

· [**]

Population:

[**].

Endpoints:

· [**]

Patient number:

· [**].

Status:

· [**].

EXHIBIT B-3
[**] CLINICAL TRIAL

Sponsor: [**]

Title:

[**]

Principal investigator:

[**]

Design:

· [**]

Population:

[**].

Endpoints:

· [**]

Patient number:

· [**]

Status:

· [**].

EXHIBIT C
SPECIFICATIONS

Specifications for PEP02 Injection [**]

Test Items	Specifications

Appearance	[**]
Identity	[**]
Assay	[**]
Impurities	[**]
Each Individual	[**]
Total	[**]
Drug encapsulation ratio	[**]
pH	[**]
Drug (free base) / phospholipids ratio	[**]
Osmolarity	[**]
Particle size	[**]
Sterility Test	[**]
Bacterial Endotoxin (LAL)	[**]
Volume in container	[**]

EXHIBIT D
INITIAL DEVELOPMENT PLAN

Confidential Materials omitted and filed separately with the Securities and Exchange Commission pursuant to an application for confidential treatment. A total of two pages were omitted.

[**]

EXHIBIT E
PEI REGULATORY DOCUMENTATION
OUTSIDE OF PEI TERRITORY

	US	Europe	Korea	China
IND Holder	[**]	[**]	[**]	[**]
IND reference No.	[**]	[**]	[**]	[**]
IND Regulations	[**]	[**]	[**]	[**]
Indications	[**]	- [**]	[**]	- [**]
IND transfer procedure	[**]	[**]	[**]	[**]

EXHIBIT F-1
MERRIMACK PRESS RELEASE

FOR IMMEDIATE RELEASE

Merrimack Pharmaceuticals Acquires European and Asian Rights to

MM-398, nanoliposomal irinotecan

Reuniting the worldwide rights allows for a broad, global development program for MM-398

CAMBRIDGE, Mass., May XX, 2011 — Merrimack Pharmaceuticals, Inc. and PharmaEngine, Inc. (Taipei, Taiwan) today announced the signing of an agreement under which Merrimack has acquired the rights to develop and commercialize MM-398 (aka PEP02) in Europe and Asia.

MM-398, originally developed by Hermes BioSciences which was acquired by Merrimack in 2009, is a highly stable nanoliposomal formulation of irinotecan. Previously, the development and commercialization rights to MM-398 in Europe and Asia had been licensed to PharmaEngine. Merrimack held the rights to the product in North America and all other territories around the world. Through this agreement, the worldwide rights to MM-398 have been reunited, with Merrimack now having the right to develop and commercialize MM-398 in all territories of the world with the exception of Taiwan, where PharmaEngine will retain its rights to develop and commercialize MM-398. Under the terms of the agreement, Merrimack and PharmaEngine will collaborate on the development of MM-398. PharmaEngine will receive a $10 million upfront payment and is eligible to receive up to an additional $210 million upon achievement of certain development, regulatory and sales milestones as well as tiered royalties on sales of MM-398 in Europe and Asia.

“We believe that unifying the development strategy of MM-398 is critical as we plan to move the program forward into late stage clinical trials in indications like gemcitabine-refractory pancreatic cancer where patients have very limited options,” said Robert Mulroy, President and Chief Executive Officer of Merrimack. “The PharmaEngine team has laid a great foundation for phase 3 development and commercialization by conducting clinical trials across multiple indications and we look forward to working aggressively with them to bring this product to market.”

To date, PharmaEngine has tested MM-398 (under the designation of PEP02) in several human clinical studies including Phase 1 safety studies and a randomized Phase 2 trial in gastric cancer patients. A Phase 2 study in pancreatic cancer patients and a Phase 1 study in colorectal cancer patients are currently ongoing. Final data from the Phase 2 gastric cancer trial and interim data on the Phase 2 pancreatic cancer trial were presented at the 2011 Gastrointestinal Cancers Symposium in January. MM-398 is also being evaluated in a Phase 1 glioma trial under an investigator-sponsored IND at the University of California, San Francisco.

About Merrimack

Merrimack Pharmaceuticals, Inc. is a biopharmaceutical company dedicated to the discovery and development of novel medicines for the treatment of cancer. Merrimack is advancing a pipeline of engineered therapeutics paired with molecular diagnostics. In addition to several pre-clinical and research stage programs, Merrimack has five oncology candidates in clinical development or

expected to enter clinical development this year: MM-398 in Phase 2 testing in partnership with PharmaEngine, Inc., MM-121 in Phase 2 testing in partnership with sanofi-aventis, MM-111 in Phase 1/2 testing and MM-302 and MM-151 which are both expected to enter Phase 1 clinical development this year. MM-398, MM-121, MM-111, MM-302 and MM-151 are investigational drugs and have not been approved by the U.S. Food and Drug Administration or any international regulatory agency. Merrimack uses its proprietary Network Biology discovery platform, developed with the help of leading scientists from MIT and Harvard, to integrate the fields of engineering, biology and computing to enable mechanism-based model driven discovery and development of both therapeutics and diagnostics. Merrimack is a privately-held company based in Cambridge, Massachusetts. For additional information, please visit http://www.merrimackpharma.com.

Contact: Kathleen Petrozzelli, Corporate Communications, 617-441-1043, kpetrozzelli@merrimackpharma.com, http://www.merrimackpharma.com
Betsy Stevenson, RaymondStevenson Healthcare, 860-984-1424, betsy@raymondstevenson.com

About PharmaEngine, Inc.

PharmaEngine, Inc. is a biopharmaceutical company established in Taipei, Taiwan in 2003. The company focuses on the development of new drugs to treat cancer and Asian prevalent diseases. For further information on PharmaEngine, Inc., please visit the Company’s website at http://www.pharmaengine.com.

# # #

EXHIBIT F-2
PEI PRESS RELEASE

PharmaEngine, Inc. and Merrimack Pharmaceuticals, Inc. Enter into a Licensing and Collaboration Agreement on PEP02 (MM-398), Nanoliposomal Irinotecan

PharmaEngine eligible for US$220 million in upfront and milestone payments plus royalties

Taipei, Taiwan, May XX, 2011 — (PR Newswire) — PharmaEngine, Inc. and Merrimack Pharmaceuticals, Inc. announced today the execution of an agreement under which PharmaEngine grants back to Merrimack the rights to develop, manufacture, and commercialize PEP02 (known under the designation of MM-398 by Merrimack) in Asia and Europe, with the exception of Taiwan.

Under the agreement, PharmaEngine will receive an upfront payment of US$10 million, and is eligible to receive up to an additional US$210 million of milestone payments, as well as tiered royalties on net sales in Asia and Europe. Merrimack is responsible for all product development costs in the licensed territories, while PharmaEngine retains the exclusive development and commercialization rights in Taiwan, and plays a role in clinical and regulatory activities pursuant to an integrated global development plan.

“We are thrilled to collaborate with Merrimack to advance the development of PEP02 (MM-398). Drug development is like a relay race; PharmaEngine has developed this drug candidate from preclinical to phase II stages, and we believe that Merrimack is well-positioned to take the baton and accelerate development of this product through global commercialization,” said C. Grace Yeh, Ph.D., President and Chief Executive Officer of PharmaEngine. “Today’s

announcement signifies the commitment of both companies to develop an innovative nanoparticle therapy that addresses significant unmet medical needs for cancer patients who are refractory to available treatments."

About PEP02 (MM-398)

PEP02 is a novel and highly stable nanoliposomal formulation of irinotecan. PharmaEngine has tested PEP02 in several human clinical studies to date, including four phase I studies and two phase II studies in gastric and pancreatic cancers. Both phase II studies met their primary endpoints of response rate and 3-month survival. Data from both studies were recently presented at the 2011 Gastrointestinal Cancers Symposium of the American Society of Clinical Oncology (ASCO) in San Francisco, CA, USA.

PEP02 was originally invented by Hermes BioSciences, Inc. In 2003, PharmaEngine licensed the exclusive rights to develop and commercialize PEP02 in Asia from Hermes, and subsequently expanded the territory to Europe in 2005. Hermes retained the rights in North America and all other territories. Hermes BioSciences, Inc. was acquired by Merrimack in 2009.

About PharmaEngine

PharmaEngine, Inc. is a biopharmaceutical company established in Taipei, Taiwan in 2003. PharmaEngine adopts the business model of "no research, development only" and focuses on the development of new drugs for the treatment of cancer and Asian prevalent diseases. For further information, please visit the Company's website at http://www.pharmaengine.com.

Contact: Peter Wu, Senior Manager, Business Development, peter.wu@pharmaengine.com, Tel. No. (+886)-2-2515-8228.

About Merrimack

Merrimack Pharmaceuticals, Inc. is a biopharmaceutical company dedicated to the discovery and development of novel medicines for the treatment of cancer. Merrimack has five oncology candidates in

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clinical development or expected to enter clinical development this year. Merrimack is a privately-held company based in Cambridge, MA, USA. For additional information, please visit Merrimack's website at http://www.merrimackpharma.com.

# # #

Exhibit 10.18

CONFIDENTIAL

EXECUTION COPY

Confidential Materials omitted and filed separately with the
Securities and Exchange Commission. Asterisks denote omissions.

LICENSE AND COLLABORATION AGREEMENT

By and Between

SANOFI-AVENTIS

and

MERRIMACK PHARMACEUTICALS, INC.

TABLE OF CONTENTS

Exhibits

LICENSE AND COLLABORATION AGREEMENT

This License and Collaboration Agreement (this "Agreement"), dated the 30th day of September, 2009 (the "Execution Date"), is by and between SANOFI-AVENTIS, a French corporation with its principal offices at 174 avenue de France, 75013 Paris, France ("SANOFI-AVENTIS"), and MERRIMACK PHARMACEUTICALS, INC., a Massachusetts corporation with its principal offices at One Kendall Square, Suite B7201, Cambridge, MA 02139-1670, U.S.A. ("MERRIMACK").

INTRODUCTION

1. MERRIMACK has rights to a monoclonal antibody, known as MM-121, with binding affinity to the ErbB3 protein, as more specifically described below.

2. SANOFI-AVENTIS is engaged in the research, development, manufacture and commercialization of products for human and animal diseases and disorders.

3. SANOFI-AVENTIS and MERRIMACK are interested in collaborating in the development and commercialization of products comprised of MM-121 and potentially other monoclonal antibodies targeting ErbB3 on the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the mutual covenants contained herein and other good and valuable consideration, the receipt of which is hereby acknowledged, SANOFI-AVENTIS and MERRIMACK agree as follows:

Article I
Definitions

For purposes of clarity, when used in this Agreement, each of the following terms shall have the meanings set forth in this Article I:

Section 1.1 "Affiliate". Affiliate means, with respect to a Party, any Person that controls, is controlled by, or is under common control with such Party. For purposes of this Section 1.1, "control" shall refer to (a) in the case of a Person that is a corporate entity, direct or indirect ownership of fifty percent (50%) or more of the stock or shares having the right to vote for the election of directors of such Person, or (b) in the case of a Person that is not a corporate entity, the possession, directly or indirectly, of the power to direct, or cause the direction of, the management or policies of such Person, whether through the ownership of voting securities, by contract or otherwise.

Section 1.2 "Bankruptcy Code". Bankruptcy Code means 11 U.S.C. §§ 101-1330 of the U.S. Bankruptcy Code, as amended, and similar laws governing bankruptcy and insolvency in countries outside the United States.

Section 1.3 "Business Day". Business Day means a day on which banking institutions in Boston, Massachusetts, United States, and in France are open for business, excluding any Saturday or Sunday.

Section 1.4 "[**] Sublicense Agreement". [**] Sublicense Agreement means the Sublicense Agreement, dated as of [**], by and between [**] and MERRIMACK.

Section 1.5 "Collaboration Compound". Collaboration Compound means (a) MM-121, (b) [**], and (c) any Back-Up Compound designated in accordance with Section 3.3.

Section 1.6 "Commercialization Plan". Commercialization Plan means the sales and marketing plan for Co-Promoted Products in the USA, as prepared, updated and amended from time to time in accordance with Section 2.1(b), Section 2.3(e) and Section 5.4(a). As long as MERRIMACK does not opt out of or terminate the Co-Promotion of a given Co-Promoted Product hereunder, the Commercialization Plan shall include an allocation of Co-Promotion activities of each Party with respect to such Co-Promoted Product(s), budgets and timelines for marketing and promotion activities in the USA, product positioning, marketing strategy, product labeling strategy, general pricing and readjustment strategy.

Section 1.7 "Commercially Reasonable Efforts". Commercially Reasonable Efforts means, with respect to the performing Party, the carrying out of obligations of such Party in a diligent, expeditious and sustained manner, including the allocation of commercially reasonable personnel and financial resources, but in no event less than such level of resources that (in the case of SANOFI-AVENTIS) pharmaceutical and major biotechnology companies or (in the case of MERRIMACK) comparable biotechnology companies typically devote to their own internally discovered products, to which they solely own all rights without financial obligations to any licensor, of similar market potential at a similar stage in its development or product life, taking into account scientific and commercial factors, including issues of safety and efficacy, product profile, difficulty in developing or manufacturing the Collaboration Compound or Licensed Product, competitiveness of alternative Third Party products in the marketplace, the patent or other proprietary position of the Collaboration Compound or Licensed Product, the regulatory requirements involved and the potential profitability for the performing Party of the Collaboration Compound or Licensed Product marketed or to be marketed.

Section 1.8 "Completion of PoC". Completion of PoC means, as to a particular Collaboration Compound or Licensed Product for a given indication, completion of the first PoC Phase II Study that generates favorable data as to efficacy of such Collaboration Compound or Licensed Product for such indication.

Section 1.9 "Confidential Information". Confidential Information means all Know-How or other confidential or proprietary information of a Party that is disclosed (whether in written, graphic, oral, electronic or other form) by or on behalf of such Party to the other Party pursuant to this Agreement, including information regarding a Party's or its licensor's technology, products, business, business plans, financial status, biological substances, chemical substances, formulations, techniques, methodology, equipment, sources of supply and patent positioning. The status, prospects or objectives regarding the Development Program, Collaboration Compounds or Licensed Products shall be deemed "Confidential Information" of both Parties. All information disclosed prior to the Effective Date by or on behalf of either Party under, and subject to, the confidentiality agreement between MERRIMACK and SANOFI-AVENTIS dated June 12, 2009 (the "Confidentiality Agreement") shall be deemed "Confidential Information" of the disclosing Party hereunder.

Section 1.10 "Control" or "Controlled". Control or Controlled means with respect to any Know-How, Patent Right or other intellectual property right, the possession (whether by license (other than pursuant to this Agreement) or ownership, or control over an Affiliate with such a license or ownership) by a Party of the ability to grant to the other Party access or a license as provided herein without violating the terms of any agreement or arrangement with any Third Party existing before or after the Effective Date.

Section 1.11 "Co-Promote". Co-Promote, Co-Promoting or Co-Promotion means the joint marketing and promotion (including detailing but excluding invoicing) of Co-Promoted Products in the USA as further described in Article V.

Section 1.12 "Cover", "Covering" or "Covered". Cover, Covering or Covered means, with respect to a Patent Right, that, but for a license granted to a Party under a Valid Claim included in such Patent Right, the practice by such Party of any invention claimed in such Patent Right would infringe such Valid Claim.

Section 1.13 "Development Program". Development Program means the pre-clinical, clinical and other research, development, regulatory and pre-commercial manufacturing activities of the Parties directed to Collaboration Compounds and Licensed Products and undertaken in accordance with the Global Development Plan.

Section 1.14 "Development Term". Development Term means the term commencing on the Effective Date and ending upon the earlier of (a) [**], or (b) the [**] anniversary of the Effective Date; provided that, as long as the Development Program remains active as to one or more Collaboration Compounds or Licensed Products, the Parties may elect, by mutual agreement, to extend the Development Term for consecutive one-year periods, until the completion or earlier termination of the Development Program.

Section 1.15 "Diagnostic Patent Rights". Diagnostic Patent Rights means (a) the patent applications that are listed in Exhibit A-1, (b) any divisionals, continuations, continuations-in-part, provisionals, or substitute applications with respect to any patent applications listed in Exhibit A-1, (c) any patent issued with respect to any of the foregoing, including utility patents, utility models, design patents and certificates of invention, (d) any reissue, reexamination, renewal, extension (including any supplemental patent certificate) or addition with respect to any of the foregoing, and (e) any Patent Rights other than those included in sub-paragraphs (a) through (d) that are Controlled by Merrimack, itself or jointly with SANOFI-AVENTIS, at any time after the Effective Date during the Term and that Cover Diagnostic Technology or the manufacture, use, offer for sale, sale or importation of a Diagnostic Product.

Section 1.16 "Diagnostic Product". Diagnostic Product means a diagnostic test that is designed to use Diagnostic Technology to stratify patient response as to, or predict suitability of patients for treatment with, a Therapeutic Product.

Section 1.17 "Diagnostic Technology". Diagnostic Technology means any Know-How that is Controlled (disregarding any grant of rights to SANOFI-AVENTIS pursuant to this Agreement) by Merrimack, itself or jointly with SANOFI-AVENTIS, as of the Effective Date

and thereafter during the Term, that is used in, or necessary or useful for, the research, development, manufacture or commercialization of any Diagnostic Product.

Section 1.18 "Dyax". Dyax means Dyax Corp., a Delaware corporation.

Section 1.19 "Dyax Collaboration Agreement". Dyax Collaboration Agreement means the Amended and Restated Collaboration Agreement, dated as of January 24, 2007 and amended as of July 31, 2008, by and between Dyax and MERRIMACK.

Section 1.20 "Effective Date". Effective Date means the HSR Clearance Date.

Section 1.21 "EMEA". EMEA means the European Medicines Agency or any successor agency thereof.

Section 1.22 "EU". EU means the European Union, as it may be constituted from time to time.

Section 1.23 "Exclusivity Period". Exclusivity Period means the period commencing on the Effective Date and ending upon the [**].

Section 1.24 "Executive Officers". Executive Officers mean the Senior Vice President, head of Research and Development of SANOFI-AVENTIS (or a senior executive officer of SANOFI-AVENTIS designated by such Senior Vice President) and a senior vice president designated by MERRIMACK or a senior executive officer designated by MERRIMACK having seniority comparable or higher than that of a senior vice president.

Section 1.25 "Existing Third Party Licenses". Existing Third Party Licenses means the [**] Sublicense Agreement, the Dyax Collaboration Agreement, the PHS Agreement and the Selexis License Agreement.

Section 1.26 "FDA". FDA means the United States Food and Drug Administration or any successor agency thereto.

Section 1.27 "Field". Field means all human and veterinary fields of use, including therapeutic, prophylactic and diagnostic uses in all possible indications.

Section 1.28 "First Commercial Sale". First Commercial Sale means, with respect to a given Licensed Product in a given country, the date on which such Licensed Product is first sold following Marketing Authorization of such Licensed Product in such country (or, in a country in which no Marketing Authorization is required, the date on which the Licensed Product is first sold) by, on behalf of or under the authority of SANOFI-AVENTIS or any of SANOFI-AVENTIS' Affiliates or sublicensees in arm's-length transactions to Third Parties (but not including sales relating to transactions among SANOFI-AVENTIS and SANOFI-AVENTIS' Affiliates and sublicensees and agents unless such Person is the end user thereof).

Section 1.29 "FTE". FTE means a full time equivalent person year (consisting of a total of [**] hours per year) of scientific or technical work or scientific or technical managerial work on or directly related to activities undertaken by a Party hereunder.

Section 1.30 "FTE Rate". FTE Rate means $[**] per FTE, increased or decreased annually on January 1 of each year, commencing with January 1, 2011, by the percentage increase or decrease in the Consumer Price Index ("CPI") as of the then-most-recent December 31 over the CPI as of December 31, 2009. As used in this Section 1.30, Consumer Price Index or CPI means the Consumer Price Index — Urban Wage Earners and Clerical Workers, US City Average, All Items, 1982-84 = 100, published by the United States Department of Labor, Bureau of Labor Statistics (or its successor equivalent index).

Section 1.31 "Generic Product". Generic Product means, with respect to a Therapeutic Product, on a country-by-country basis, a product (a) that contains an antibody substantially the same as, and therapeutically substitutable for, such Therapeutic Product; and (b) that has received Marketing Authorization in the Field in such country through a regulatory approval process by which the sponsor or the regulatory agency relies, in whole or in part, upon the data supporting such Therapeutic Product and such product is considered a "generic", "biosimilar" or "follow-on biologic" version of the Therapeutic Product (including pursuant to Directive 2001/83/EC as amended, in the EU). "Generic Product" shall not include any products sold or authorized for sale by SANOFI-AVENTIS or its Affiliates or sublicensees.

Section 1.32 "Global Development Plan". Global Development Plan means the global development plan for Collaboration Compounds and Licensed Products, as prepared, updated and amended from time to time in accordance with Section 2.1(b), Section 2.2(e), Section 3.1(a) and Section 3.2(f).

Section 1.33 "IND". IND means an application submitted to a Regulatory Authority to initiate human clinical trials, including (a) an Investigational New Drug application or any successor application or procedure filed with the FDA, (b) any non-US equivalent of a United States IND, and (c) all supplements and amendments that may be filed with respect to the foregoing.

Section 1.34 "Joint Technology". Joint Technology means Know-How that is developed by one or more employees, agents or consultants of Merrimack on the one hand, and one or more employees, agents or consultants of SANOFI-AVENTIS, on the other hand, in the performance of this Agreement.

Section 1.35 "Joint Patent Rights". Joint Patent Rights means all Patent Rights that Cover any Joint Technology.

Section 1.36 "Know-How". Know-How means any technical, scientific and business information, data and materials, including all biological, chemical, pharmacological, toxicological, preclinical, clinical, and assay information, data and materials, analyses, ideas, discoveries, inventions, methods, techniques, improvements, concepts, designs, processes, procedures, compositions, plans, formulae, specifications and trade secrets, whether or not patentable, including documents and other media (including paper, notebooks, books, files, ledgers, records, tapes, discs, diskettes, CD-ROM, trays and containers and any other media developed following the Effective Date) containing or storing any of the foregoing.

Section 1.37 "Laws". Laws means all laws, statutes, rules, regulations, orders, judgments, or ordinances having the effect of law of any federal, national, multinational, state, provincial, county, city or other political subdivision.

Section 1.38 "Licensed Intellectual Property". Licensed Intellectual Property means Therapeutic Technology, Therapeutic Patent Rights, Diagnostic Technology and Diagnostic Patent Rights.

Section 1.39 "Licensed Patent Rights". Licensed Patent Rights means the Diagnostic Patent Rights and the Therapeutic Patent Rights.

Section 1.40 "Licensed Product". Licensed Product means any Diagnostic Product or any Therapeutic Product.

Section 1.41 "Licensed Technology". Licensed Technology means the Diagnostic Technology and the Therapeutic Technology. The Licensed Technology existing as of the Execution Date is generally summarized in Exhibit A-3.

Section 1.42 "Listed Third Party Patents". Listed Third Party Patents shall refer to the Patent Rights set forth on Exhibit B.

Section 1.43 "Major EU Country". Major EU Country means any of France, Germany, Italy, Spain or the United Kingdom.

Section 1.44 "Major Territory". Major Territory means any of the USA, the EU, or Japan.

Section 1.45 "Manufacturing Costs". Manufacturing Costs means, as to a Party, such Party's direct and identifiable internal and external costs of manufacturing and packaging Collaboration Compounds and Licensed Products, consisting of the following:

(a) with regard to a Party's internal costs and charges, Manufacturing Costs shall consist of all internal costs of such Party's personnel engaged in manufacturing, packaging and shipment of Collaboration Compounds and Licensed Products, at the FTE Rate; and

(b) with regard to a Party's external costs and charges, Manufacturing Costs shall consist of the invoiced costs and charges of suppliers of goods, including raw materials, and services, including contract manufacturing organizations (CMO), directly related to the manufacture, packaging and shipment of Collaboration Compounds and Licensed Products.

Section 1.46 "Marketing Authorization". Marketing Authorization means the authorization issued by the relevant Regulatory Authority (including, where required, any governmental price and/or reimbursement approvals or inclusion on the official list of reimbursable drugs, as applicable) necessary to place on the market a Therapeutic Product or Diagnostic Product in any country or regulatory jurisdiction (such as, for example, the approval of a Biologics License Application in the USA under Section 351 of the Public Health Service Act or the approval of a Marketing Authorization Application in EU under Regulation (EC) n° 726/2004 or Directive 2001/83/EC). For purposes of determining whether applicable price or

reimbursement approvals or inclusion on the official list of reimbursable drugs, as applicable, have been obtained for sale of a product in the EU, if required price and reimbursement approvals or inclusion on the official list of reimbursable drugs, as applicable, have been obtained for sale of the product in at least one (1) Major EU Country, all such price and reimbursement approvals or inclusion on the official list of reimbursable drugs, as applicable, shall be deemed have been obtained for sale of such product in all countries of the EU.

Section 1.47 "MHLW". MHLW means the Japanese Ministry of Health, Labor and Welfare, and any successor agency thereto.

Section 1.48 "[**] means the MERRIMACK [**]. Specifically, [**].

Section 1.49 "MM-121". MM-121 means the monoclonal antibody targeting ErbB3 as more specifically described on Exhibit C.

Section 1.50 "NDA". NDA means an application submitted to a Regulatory Authority for marketing approval of a product, including (a) a New Drug Application, Product License Application or Biologics License Application filed with the FDA, or any successor applications or procedures, (b) any non-US equivalent of a United States NDA, Product License Application or Biologics License Application, and (c) all supplements and amendments that may be filed with respect to the foregoing.

Section 1.51 "Net Sales". Net Sales means, with respect to a Therapeutic Product, the gross amount invoiced by SANOFI-AVENTIS, its Affiliates or its sublicensees on sales or other dispositions of Therapeutic Products to Third Party customers, less the following deductions:

(a) Trade, cash or quantity discounts actually allowed and taken directly with respect to such sales, as reflected in the amount invoiced;

(b) Tariffs, duties, excises, sales taxes or other taxes imposed upon and paid directly with respect to the production, sale, delivery or use of the Therapeutic Product (excluding taxes based on the income or profits of the selling party), as reflected in the amount invoiced;

(c) Amounts repaid or credited by reason of rejections, defects, recalls or returns or because of chargebacks, refunds, rebates or retroactive price reductions;

(d) Price concessions either mandated or negotiated with both commercial or governmental payers; and

(e) Freight, insurance and other transportation charges incurred in shipping a Therapeutic Product to Third Parties, as reflected in the amount invoiced.

Such amounts shall be determined from the books and records of SANOFI-AVENTIS, its Affiliates or its sublicensees, as applicable, maintained in accordance with generally accepted accounting principles, consistently applied.

In the case of any sale of Therapeutic Products for consideration other than cash, such as barter or countertrade, Net Sales shall be calculated on average sales price for the applicable Therapeutic Product(s) in the applicable country in the entire applicable year.

Sales of Therapeutic Products between SANOFI-AVENTIS and its Affiliates or its sublicensees, or among such Affiliates and sublicensees, shall be disregarded for purposes of calculating Net Sales hereunder, except for sales to Affiliates or sublicensees that are the intended end user.

In the event a Therapeutic Product is sold as part of a Combination Product (as defined below), the Net Sales from the Combination Product, for the purposes of determining royalty payments, shall be determined by multiplying the Net Sales of the Combination Product during the applicable royalty reporting period, by the fraction, A/A+B, where A is the average sale price of the Therapeutic Product when sold separately in finished form, and B is the average sale price of the other product(s) included in the Combination Product when sold separately in finished form, in each case during the applicable royalty reporting period or, if sales of both the Therapeutic Product and the other product(s) did not occur in such period, then in the most recent royalty reporting period in which sales of both occurred.

In the event that such average sale price cannot be determined for both the Therapeutic Product and all other products(s) included in the Combination Product, Net Sales for the purposes of determining royalty payments shall be calculated by multiplying the Net Sales of the Combination Product by the fraction of C/C+D where C is the fair market value of the Therapeutic Product and D is the fair market value of all other pharmaceutical product(s) included in the Combination Product. In such event, SANOFI-AVENTIS shall in good faith make a determination of the respective fair market values of the Therapeutic Product and all other pharmaceutical products included in the Combination Product, and shall notify MERRIMACK of such determination and provide MERRIMACK with data to support such determination. MERRIMACK shall have the right to review such determination and supporting data, and to notify SANOFI-AVENTIS if it disagrees with such determination. If MERRIMACK does not agree with such determination and if the Parties are unable to agree in good faith as to such respective fair market values, then such matter shall be referred to the Executive Officers for resolution pursuant to Section 13.1 and, if the Executive Officers are unable to resolve such matter in accordance with Section 13.1, such matter shall be referred to binding arbitration for resolution pursuant to Section 13.2.

As used above, the term "Combination Product" means any pharmaceutical product that consists of a Collaboration Compound and other active compounds or active ingredients.

Section 1.52 "Party". Party means SANOFI-AVENTIS or MERRIMACK; "Parties" means SANOFI-AVENTIS and MERRIMACK.

Section 1.53 "Patent Right". Patent Right means any United States or foreign patent applications, all patents that issue from such applications, including utility patents, utility models, design patents and certificates of invention, and all divisionals, continuations, continuations-in-part, substitutions, provisionals, reissues, reexaminations, renewals, extensions (including any supplemental patent certificate) or additions to any such patent applications and patents.

Section 1.54 "Person". Person means any natural person or any corporation, company, partnership, limited liability company, joint venture, firm, agency or other entity, including a Party.

Section 1.55 "Phase III Clinical Study". Phase III Clinical Study means, as to a particular Collaboration Compound or Licensed Product, a human clinical trial in any country that would satisfy the requirements of 21 C.F.R. §312.21(c), or a human clinical trial that would satisfy comparable requirements in a country other than the US, which is designed to ascertain efficacy and safety of a Collaboration Compound or Licensed Product for the purpose of preparing and submitting an NDA to the applicable Regulatory Authority(ies) in the applicable country(ies).

Section 1.56 "PHS". PHS means The National Institutes of Health or the Food and Drug Administration.

Section 1.57 "PHS Agreement". PHS Agreement means the Public Health Service Non-Exclusive Patent License Agreement, dated as of February 20, 2008, by and between MERRIMACK and PHS.

Section 1.58 "PoC Phase II Study". PoC Phase II Study means, as to a particular Collaboration Compound or Licensed Product for a given indication, a human clinical trial that (a) would satisfy the requirements of 21 C.F.R. §312.21(b), or a human clinical trial that would satisfy comparable requirements in a country other than the US, (b) is designed to generate, among other things, data as to the efficacy of a Collaboration Compound or Licensed Product for such indication, and (c) is designated as a PoC Phase II Study by the JDC.

Section 1.59 "Regulatory Approval". Regulatory Approval means any and all approvals (including, where required, any applicable governmental price and reimbursement approvals), licenses, registrations or authorizations of any Regulatory Authority necessary for the manufacture, use, storage, import, promotion, marketing and sale of a product in a country or jurisdiction, including Marketing Authorizations.

Section 1.60 "Regulatory Authority". Regulatory Authority means any federal, national, multinational, state, provincial or local regulatory agency, department, bureau or other governmental entity with authority over the testing, approval, manufacture, use, storage, import, promotion, marketing or sale of a product in a country, including the FDA, EMEA or MHLW.

Section 1.61 "ROW Territory". ROW Territory means all countries of the world, excluding the USA.

Section 1.62 "SANOFI-AVENTIS Patent Rights". SANOFI-AVENTIS Patent Rights means all Patent Rights Controlled by SANOFI-AVENTIS, itself or jointly with MERRIMACK, as of the Effective Date and thereafter during the Term and Cover any SANOFI-AVENTIS Technology or the manufacture, use, offer for sale, sale or importation of any Collaboration Compound or Licensed Product.

Section 1.63 "SANOFI-AVENTIS Technology". SANOFI-AVENTIS Technology means all Know-How Controlled by SANOFI-AVENTIS, itself or jointly with MERRIMACK, as of the Effective Date and thereafter during the Term, that is used in, or necessary or useful for,

the research, development, manufacture or commercialization of Collaboration Compounds and Licensed Products.

Section 1.64 "Selexis". Selexis means Selexis SA, a Swiss company.

Section 1.65 "Selexis License Agreement". Selexis License Agreement means the Commercial License Agreement, dated as of June 4, 2008, by and between Selexis and MERRIMACK.

Section 1.66 "Territory". Territory means all countries of the world.

Section 1.67 "Therapeutic Patent Rights". Therapeutic Patent Rights means, in each case to the extent Controlled by Merrimack: (a) the patent applications that are listed in Exhibit A-2, (b) any divisionals, continuations, continuations-in-part, provisionals, or substitute applications with respect to any patent applications listed in Exhibit A-2, (c) any patent issued with respect to any of the foregoing, including utility patents, utility models, design patents and certificates of invention, (d) any reissue, reexamination, renewal, extension (including any supplemental patent certificate) or addition with respect to any of the foregoing, and (e) any Patent Rights other than those included in sub-paragraphs (a) through (d) that are Controlled by MERRIMACK, itself or jointly with SANOFI-AVENTIS, at any time after the Effective Date during the Term and Cover any Therapeutic Technology or the manufacture, use, offer for sale, sale or importation of any Therapeutic Product.

Section 1.68 "Therapeutic Product". Therapeutic Product means any pharmaceutical product comprising a Collaboration Compound as an active ingredient. For purposes of clarity, (a) Therapeutic Product excludes any Diagnostic Product, and (b) unless the context otherwise dictates, all references to "Therapeutic Product" shall include the Collaboration Compound contained in such Therapeutic Product.

Section 1.69 "Therapeutic Technology". Therapeutic Technology means any Know-How that is Controlled (disregarding any grant of rights to SANOFI-AVENTIS pursuant to this Agreement) by MERRIMACK, itself or jointly with SANOFI-AVENTIS, as of the Effective Date and thereafter during the Term, that is used in, or necessary or useful for, the research, development, manufacture or commercialization of any Therapeutic Product.

Section 1.70 "Third Party". Third Party means any Person other than a Party or any of its Affiliates.

Section 1.71 "US" or "USA". "US" or "USA" means United States of America, its territories and possessions.

Section 1.72 "Valid Claim". Valid Claim means, as to a Therapeutic Product, on a country-by-country basis, an unexpired claim of an issued patent Controlled by MERRIMACK (whether solely or jointly with SANOFI-AVENTIS) that (a) in the absence of a license from MERRIMACK (in the case of such claims solely Controlled by MERRIMACK) or in the absence of Control by SANOFI-AVENTIS or a license from MERRIMACK (in the case of such claims jointly Controlled by MERRIMACK and SANOFI-AVENTIS), would be infringed by the manufacture, use, offer for sale, sale or importation of such Therapeutic Product in such country,

and (b) has not lapsed or been revoked, withdrawn or found to be unpatentable, invalid or unenforceable by a court or other authority of competent jurisdiction in the subject country, from which decision no further appeal can be taken, or with respect to which an appeal is not taken within the time (including any extensions) allowed for appeal, and that has not been disclaimed or admitted to be invalid or unenforceable through reissue, disclaimer or otherwise; provided, however, that (x)Valid Claim shall exclude any claims of any issued patent as to which the filing date of the earliest patent application from which such issued patent claims priority is later than the later of (i) [**], or (ii) [**] and (y) if in a particular country the only claim(s) of issued patent(s) Controlled by MERRIMACK (whether solely or jointly with SANOFI-AVENTIS) that would be infringed as set forth in clause (a) above are manufacturing process claim(s), and under applicable patent Laws in such country a sale of the applicable Therapeutic Product in such country would not (in the absence of a license from MERRIMACK thereunder and/or ownership or Control by SANOFI-AVENTIS thereof, as applicable) infringe such manufacturing process claim(s), such manufacturing process claim(s) shall not constitute Valid Claim(s) for purposes of determining SANOFI-AVENTIS' royalty obligations with respect to such sale in such country. For clarity, it is understood that Valid Claims do not include issued patents that are not Controlled by MERRIMACK, such as issued patents Controlled solely by SANOFI-AVENTIS.

Section 1.73 Additional Definitions. Each of the following definitions is set forth in the section of this Agreement indicated below:

Definitions	Section
[**]% Market Erosion	8.4(g)(i)
[**]% Market Erosion	8.4(g)(ii)
AAA	13.2(c)
Agreement	Preamble
Alliance Manager	2.1(c)
Arbitration Request	13.2(a)
Back-Up Compound	3.3
Baseline Net Sales	8.4(g)(i)
Biological Materials	3.2(g)
Breaching Party	12.4
Claims	14.1
Combination Product	1.51
Competing Product	6.2(a)
Competitive Infringement	9.3(a)
Confidentiality Agreement	1.9
Co-Promote Royalty Term	8.4(e)(ii)(A)
Co-Promote Term	8.4(e)(ii)(B)
Co-Promoted Product	5.3(a)
Co-Promotion Guidelines	5.4(a)(ii)
Co-Promotion Opt-Out Period	5.3(a)
DOJ	15.3(a)
EPO	9.2(e)(iii)
Execution Date	Preamble
Failed Product	8.2(f)

Definitions	Section
FTC	15.3(b)
HSR Act	15.3(c)
HSR Clearance	15.3(d)
HSR Clearance Date	15.3(e)
HSR Filings	15.3(f)
Indemnified Party	14.3(a)
Indemnifying Party	14.3(a)
Invalidity Claim	9.5(a)
JCC	2.3(a)
JDC	2.2(a)
Joint Invention	9.1(b)
JSC	2.1(a)
Licensing Opportunity	6.3(a)
Licensing Revenues	12.9
Losses	14.1
Manufacturing Technology	3.4(a)(i)(A)
Marketing Costs	5.4(a)(vii)
MERRIMACK	Preamble
Negotiation Period	6.3(c)(iii)
Non-Arbitrable Dispute	13.1(b)
Non-Breaching Party	12.4
Paragraph IV Certification	9.6
Parent	6.2(a)
Patent Challenge	12.6
Patent Prosecution	9.2(e)
Publishing Party	10.5(a)
Response Period	6.3(a)
Royalty Term	8.4(e)(i)

Sales Force Costs	5.4(a)(iv)
SANOFI-AVENTIS	Preamble
SDEA	4.4
SEC	10.3(b)(ii)
Standstill Period	16.3(c)
Subject Disclosure	10.3(b)
Successful Use	8.2(c)
Term	12.1
Terminated Products	12.8
Terminated Territories	12.8
Third Party License	8.4(h)(i)
Third Party License Costs	8.4(h)(i)
Trial Diligence Breach	3.2(d)
US Filing Date	2.1(b)(vii)
USPTO	9.2(e)(iii)
WIPO	9.2(e)(iii)

Article II
Governance; Decision-Making

Section 2.1 Joint Steering Committee.

(a) Formation and Membership. Within [**] days after the Effective Date, SANOFI-AVENTIS and MERRIMACK shall establish a joint steering committee (the "JSC") to review, coordinate and provide overall strategic direction to their activities pursuant to the Global Development Plan and, as long as MERRIMACK does not opt out of or terminate Co-Promotion with respect to the Co-Promoted Products, the Co-Promotion of Co-Promoted Product(s) pursuant to the Commercialization Plan. The JSC shall be comprised of [**] senior executives of SANOFI-AVENTIS and [**] senior executives of MERRIMACK with appropriate experience and level of decision-making authority. Each Party may change any one or more of its representatives on the JSC at any time upon written notice to the other Party. MERRIMACK's participation on the JSC after the end of the [**] shall be at MERRIMACK's [**]. From time to time, the JSC may, in its discretion, establish one or more subcommittees or project teams to oversee particular projects or activities, as the JSC deems necessary or advisable. The Executive Officers shall not be members of the JSC.

(b) Responsibilities. The JSC shall be responsible for:

(i) reviewing and approving the initial Global Development Plan prepared by the JDC, including all budgets relating to development activities to be conducted by MERRIMACK hereunder;

(ii) periodically reviewing the Global Development Plan and suggesting or approving such updates or amendments to the Global Development Plan as the JSC deems appropriate, including all budget amendments;

(iii) as long as MERRIMACK does not opt out of Co-Promotion, reviewing and approving the initial Commercialization Plan for the Co-Promoted Product(s) prepared by the JCC, including all budgets;

(iv) as long as MERRIMACK does not terminate Co-Promotion, periodically reviewing the Commercialization Plan for the Co-Promoted Product(s) and suggesting or approving such updates or amendments to such Commercialization Plan as the JSC deems appropriate, including all budget amendments;

(v) providing overall strategic direction with respect to research, development, regulatory and manufacturing activities conducted under the Global Development Plan, and with respect to commercialization activities conducted under the Commercialization Plan (if any);

(vi) overseeing the JDC and, if applicable, the JCC, and the Parties' progress in the conduct of activities under the Global Development Plan and the Commercialization Plan (if any) hereunder;

(vii) establishing a projected Marketing Authorization application filing date for the United States ("US Filing Date") for each Licensed Product, which planned US Filing Date may be periodically updated by the JSC based on its reasonable assessment of the clinical progress of such Licensed Product;

(viii) keeping MERRIMACK apprised, through MERRIMACK's representatives on the JSC, of the planned US Filing Date for each Licensed Product, including any updates thereto;

(ix) attempting to resolve disputes arising under this Agreement that are referred to the JSC by the JDC, JCC or either of the Parties (for clarity, the JSC shall not have the authority to resolve disputes between the Parties regarding whether a Party has fulfilled or breached any obligation under this Agreement); and

(x) performing such other tasks and undertaking such other responsibilities as may be set forth in this Agreement.

(c) Alliance Managers. Each Party shall appoint one representative to serve as an alliance manager ("Alliance Manager") with responsibility for overseeing that the Parties' activities are conducted in accordance with this Agreement, and for being the primary point of contact between the Parties with respect to all such activities. The Alliance Manager is responsible for driving the alliance progress and the resolution of issues between the

Parties. The Alliance Managers will not be members, but may attend the meetings of, the JDC and, if applicable, the JCC, and be responsible for communicating with and reporting to the JSC on all relevant matters.

(d) Administrative Matters. The JSC shall appoint a chairperson from among its members, who shall be from [**]. The Alliance Manager from [**] will work with the chairperson, and work together with [**]'s Alliance Manager to develop JSC meeting agendas. The chairperson shall be responsible for calling meetings of the JSC and for leading the meetings. A JSC member of the chairing Party shall serve as secretary of such meetings. The secretary shall promptly prepare and distribute to all members of the JSC draft minutes of the meeting for review and comment, including a list of any actions or decisions approved by the JSC, with the goal of distributing final approved minutes of each JSC meeting within thirty (30) days after the meeting.

(e) Decision-Making. Each Party shall have one (1) vote on the JSC. Both Parties must vote in the affirmative to allow the JSC to take any action that requires the approval of the JSC. Decision on any matter may be taken at a meeting, by teleconference, videoconference or by written agreement. Either Party may convene a special meeting of the JSC in accordance with Section 2.1(g)(iii) for the purpose of resolving any disagreement at the JDC level or, if applicable, JCC level, or other disputes within the JSC's jurisdiction, in case any of the foregoing represents a material issue the resolution of which cannot reasonably await until the next scheduled meeting of the JSC.

(f) Dispute Resolution by Executive Officers. If the JSC is unable to resolve any dispute within the responsibilities of the JSC specified in Section 2.1(b), or to unanimously

agree on any matter set forth in subsection (iii) below, within [**] days, or the JSC no longer remains in place at the time of a dispute within the responsibilities of the JSC specified in Section 2.1(b) and the Parties are unable to resolve such dispute within [**] days, such dispute or other matter shall be referred to the Executive Officers for resolution pursuant to Section 13.1. If the Executive Officers are unable to resolve any such matter that is within the responsibilities of the JSC pursuant to Section 13.1, then SANOFI-AVENTIS shall have final decision-making authority with respect to the development and commercialization of Collaboration Compounds and Licensed Products (including, in the case where MERRIMACK has not opted out of or terminated Co-Promotion of Co-Promoted Product(s), matters concerning Co-Promotion of Co-Promoted Product(s)), provided that:

(i) SANOFI-AVENTIS may not make a decision that is not consistent with the terms and conditions of this Agreement and with the Global Development Plan or Commercialization Plan, as the case may be;

(ii) MERRIMACK shall have final decision-making authority with respect to operational decisions related to any human clinical trial conducted by MERRIMACK, provided, that such clinical trial is conducted in compliance with the terms and conditions of this Agreement and with the Global Development Plan; and

(iii) the following decisions must be decided [**] (or, if not able to be decided [**], pursuant to Article XIII), in that [**]:

(A) increase [**]'s obligations or reduce [**]'s rights under this Agreement in connection with Collaboration Compounds or Licensed Products, including any obligation to devote additional personnel or financial resources to a specific activity or project to be conducted by [**] under the Global Development Plan;

(B) amend any of the Co-Promotion Guidelines or the allocation of Sales Force Costs or Marketing Costs between the Parties in connection with any Co-Promoted Product hereunder;

(C) if [**] has agreed to perform any human clinical trial(s) under the Global Development Plan, amend the scope, protocols, criteria or endpoints of such human clinical trial(s);

(D) determine that the events required for the payment of development, regulatory or sales milestone payments have not occurred;

(E) resolve disputes regarding the Parties' rights and obligations under this Agreement;

(F) unilaterally make a decision that is expressly stated in this Agreement to require [**]'s prior approval or consent, or the mutual agreement of the Parties; or

(G) otherwise expand [**]'s rights or reduce [**]'s obligations under this Agreement in connection with Collaboration Compounds or Licensed Products.

(g) Meetings.

(i) The JSC shall meet at least twice annually. The location of JSC meetings shall be as agreed by the Parties, and may be held in person, alternating locations between the Parties, or by telephone conference call or by videoconference.

(ii) Each Party shall use reasonable efforts to cause its representatives to attend the meetings of the JSC. In addition, each Party may, at its discretion, invite a reasonable number of non-voting employees or officers, and, with the consent of the other Party, consultants or scientific advisors, to attend meetings of the JSC or the relevant portion thereof; provided that any such consultants or scientific advisors are bound by written obligations of confidentiality that are at least as stringent as those set forth in this Agreement.

(iii) Either Party may also request that a special meeting of the JSC be convened for the purpose of resolving disputes in connection with, or for the purpose of reviewing or making a decision pertaining to, any material matter within the purview of the JSC, the examination or

resolution of which cannot reasonably be postponed until the next scheduled JSC meeting, by providing written notice to the other Party. Such meeting shall be convened at such time as may be mutually agreed upon by the Parties, but in any event shall be held within [**] days after the date of such notice.

Section 2.2 Joint Development Committee.

(a) Formation and Membership. Within [**] days after the Effective Date, SANOFI-AVENTIS and MERRIMACK shall establish a joint development committee (the "JDC") comprised of an equal number of representatives of SANOFI-AVENTIS and MERRIMACK, which number is recommended to be between [**] and [**] representatives of each Party, and each of whom shall have experience and seniority sufficient to enable him or her to make day-to-day operational decisions on behalf of the Party he represents. Each Party may change any one or more of its representatives on the JDC at any time upon written notice to the other Party. MERRIMACK's participation on the JDC after the end of the Development Term shall be at MERRIMACK's election. From time to time, the JDC may, in its discretion, establish one or more project teams, to, upon mutual agreement of the Parties, implement and coordinate various aspects of the Global Development Plan or other elements of the collaboration hereunder, such as Manufacturing Technology transfer, coordination of patent prosecution matters as contemplated in Article IX, or coordination of publication matters as contemplated in Section 10.5.

(b) Administrative Matters. The JDC shall appoint a chairperson from among its members, who shall rotate annually during the Development Term between the representatives from MERRIMACK and the representatives from SANOFI-AVENTIS, with the first chairperson to be a representative of [**]. The chairperson shall be responsible for calling meetings of the JDC and for leading the meetings. A JDC member of the chairing Party shall serve as secretary of such meetings. The secretary shall promptly prepare and distribute to all

members of the JDC draft minutes of the meeting for review and comment, including a list of any actions or decisions approved by the JDC, with the goal of distributing final approved minutes of each JDC meeting within thirty (30) days after the meeting.

(c) Decision-Making. Each Party shall have one (1) vote on the JDC. Both Parties must vote in the affirmative to allow the JDC to take any action that requires the approval of the JDC. Action on any matter may be taken at a meeting, by teleconference or videoconference or by written agreement. If the JDC is unable to reach unanimous agreement on any matter within the JDC's jurisdiction, then the matter shall be referred to the JSC for resolution under Section 2.1(b)(ix) or, if the JSC no longer remains in place, the Executive Officers for resolution under Section 13.1 (subject to Section 2.1(f) and a Party's final decision-making authority as to matters covered thereunder).

(d) Meetings.

(i) The JDC shall meet at least once during each calendar quarter during the Development Term. The location of JDC meetings shall be as agreed by the Parties, and may be held in person, alternating locations between the Parties, or by telephone conference call or by videoconference.

(ii) Each Party shall use reasonable efforts to cause its representatives to attend the meetings of the JDC. If a Party's representative is unable to attend a meeting, such Party may designate an alternate representative to attend such meeting in place of the absent representative. In addition, each Party may, at its discretion, invite a reasonable number of additional employees, and, with the consent of the other Party, consultants or scientific advisors, to attend the meetings of the JDC or the relevant portion thereof, provided that any such consultants or scientific advisors are bound by written obligations of confidentiality that are at least as stringent as those set forth in this Agreement.

(iii) Either Party may also request that a special meeting of the JDC be convened for the purpose of resolving material disputes in connection with, or for the purpose of reviewing or making a material decision pertaining to, the implementation of the Global Development Plan, the examination or resolution of which cannot reasonably be postponed until the next scheduled JDC meeting, by providing written notice to the other Party. Such meeting shall be convened at such time as may be mutually agreed upon by the Parties, but in any event shall be held within [**] days after the date of such notice.

(e) Responsibilities. The JDC shall be responsible for:

(i) reviewing, and recommending to the JSC for JSC review and approval, the initial Global Development Plan and updates and amendments thereto as appropriate;

(ii) participating in the initial assessment of any Back-Up Compound(s) and providing strategic direction with respect to non-clinical and clinical activities for Collaboration Compounds and Licensed Products;

(iii) overseeing the research and development of Collaboration Compounds;

(iv) overseeing and advising on the pre-clinical and clinical manufacture of Collaboration Compounds and Licensed Products;

(v) overseeing the transfer of manufacturing responsibility from MERRIMACK to SANOFI-AVENTIS under Section 3.4;

(vi) overseeing the progress of the Development Program and monitoring the Parties' compliance with their respective obligations under the Global Development Plan, including the accomplishment of key objectives;

(vii) reviewing and approving the protocols of studies to be conducted by MERRIMACK as set forth in Section 3.2(c); and

(viii) performing such other tasks and undertaking such other responsibilities as may be set forth in this Agreement.

Section 2.3 Joint Commercialization Committee.

(a) Formation and Membership. At a time to be mutually agreed by the Parties (but in no event later than [**] days after [**], if MERRIMACK has not opted out of Co-Promoting Co-Promoted Product(s) within the Co-Promotion Opt-Out Period), SANOFI-AVENTIS and MERRIMACK shall establish a joint commercialization committee (the "JCC") comprised of an equal number of representatives of SANOFI-AVENTIS and MERRIMACK with appropriate experience and level of decision-making authority. Each Party may change any one or more of its representatives on the JCC at any time upon written notice to the other Party. Following the formation of the JCC as set forth in the first sentence of this Section 2.3(a), the JCC shall remain in effect for as long as there is at least one (1) Co-Promoted Product being Co-Promoted by MERRIMACK in the USA. The JCC shall be dissolved upon the expiration or earlier termination of the Co-Promote Term for all Co-Promoted Products. From time to time, the JCC may, in its discretion, establish one or more project teams to, upon mutual agreement of the Parties, implement and coordinate various aspects of the Commercialization Plan.

(b) Administrative Matters. The JCC shall appoint a chairperson from among its members, who shall be a representative of [**]. The chairperson shall be responsible for calling meetings of the JCC and for leading the meetings. A JCC member of the chairing Party shall serve as secretary of such meetings. The secretary shall promptly prepare and distribute to all members of the JCC draft minutes of the meeting for review and comment, including a list of any actions or decisions approved by the JCC, with the goal of distributing final approved minutes of each JCC meeting within thirty (30) days after the meeting.

(c) Decision-Making. Each Party shall have one (1) vote on the JCC. Both Parties must vote in the affirmative to allow the JCC to take any action that requires the approval of the JCC. Action on any matter may be taken at a meeting, by teleconference or videoconference or by written agreement. If the JCC is unable to reach unanimous agreement on

any matter within the JCC's jurisdiction, then the matter shall be referred to the JSC for resolution under Section 2.1(b)(ix) or, if the JSC no longer remains in place, the Executive Officers for resolution under Section 13.1 (subject to Section 2.1(f) and a Party's final decision-making authority as to matters covered thereunder).

(d) Meetings.

(i) The JCC shall meet at least once during each calendar quarter during the Co-Promote Term. The location of JCC meetings shall be as agreed by the Parties, and may be held in person, alternating locations between the Parties, or by telephone conference call or by videoconference.

(ii) Each Party shall use reasonable efforts to cause its representatives to attend the meetings of the JCC. If a Party's representative is unable to attend a meeting, such Party may designate an alternate representative to attend such meeting in place of the absent representative. In addition, each Party may, at its discretion, invite a reasonable number of additional employees, and, with the consent of the other Party, consultants or scientific advisors, to attend the meetings of the JCC or the relevant portion thereof, provided that any such consultants or scientific advisors are bound by written obligations of confidentiality that are at least as stringent as those set forth in this Agreement.

(iii) Either Party may also request that a special meeting of the JCC be convened for the purpose of resolving material disputes in connection with, or for the purpose of reviewing or making a material decision pertaining to, the implementation of the Commercialization Plan, the examination or resolution of which cannot reasonably be postponed until the next scheduled JCC meeting, by providing written notice to the other Party. Such meeting shall be convened at such time as may be mutually agreed upon by the Parties, but in any event shall be held within [**] days after the date of such notice.

(e) Responsibilities. With respect to the Co-Promoted Product(s), as long as MERRIMACK does not opt out of or terminate Co-Promotion of Co-Promoted Product(s) hereunder, the JCC shall be responsible for:

(i) developing, and recommending to the JSC for JSC review and approval, the initial Commercialization Plan for such Co-Promoted Product(s) in the USA and annual updates and periodic amendments thereto;

(ii) overseeing and coordinating the implementation of the Commercialization Plan by the Parties in the USA;

(iii) developing a policy for handling complaints related to such Co-Promoted Product(s), as set forth in Section 5.5; and

(iv) serving generally as a forum for communication between the Parties regarding other aspects of commercialization matters relating to such Co-Promoted Product(s) in the Territory.

Notwithstanding anything in the foregoing to the contrary, the Parties acknowledge and agree that, upon the earlier to occur of (A) dissolution of the JCC in its entirety, or (B) MERRIMACK's exercise of its right to opt-out of or terminate Co-Promotion of the Co-Promoted Product(s) hereunder, SANOFI-AVENTIS shall assume all responsibility for commercialization in the USA of the Co-Promoted Product(s) if and when MERRIMACK has opted out of or terminated Co-Promotion, and the JCC has been dissolved in its entirety, in accordance with the terms and conditions of this Agreement.

Article III
Development; Manufacture and Supply

Section 3.1 Overview; Development Plan.

(a) Subject to and in accordance with the terms and conditions of this Agreement, including Section 3.2, the Parties shall collaborate on the research and development of Collaboration Compound(s) and Licensed Product(s) in accordance with the Global Development Plan. The initial Global Development Plan, and each successive Global Development Plan, shall be prepared by SANOFI-AVENTIS in consultation with MERRIMACK,

shall be reviewed and approved by the JDC and JSC, shall be consistent with the terms and conditions of the Agreement and shall specify, with a breakdown by Major Territory and the rest of the Territory, if relevant, among other things:

(i) research and development objectives,

(ii) activities to be performed, including all clinical trials and Regulatory Approvals required for manufacturing, marketing and selling Licensed Products,

(iii) the Party responsible for performance of an activity,

(iv) associated budgets for the next [**] years, regarding development activities to be conducted by MERRIMACK hereunder,

(v) timelines for performance, and

(vi) specific deliverables.

(b) Each Party shall use Commercially Reasonable Efforts to perform its respective obligations under the Global Development Plan in accordance with the Global Development Plan and all applicable Laws.

(c) SANOFI-AVENTIS shall be responsible for all costs of conducting the Development Program, including Manufacturing Costs, and shall pay MERRIMACK, within [**] days following MERRIMACK's invoice, for (i) all internal costs of MERRIMACK personnel at the FTE Rate, plus (ii) all out-of-pocket costs and expenses incurred by MERRIMACK, including costs and expenses of any Third Party contract research and manufacturing organizations, with respect to each of clause (i) and (ii) to the extent incurred in performing activities assigned to MERRIMACK under the Global Development Plan and provided (x) the applicable activities relating to conducting the Development Program have been

previously approved by the JSC prior to their start and (y) the amounts involved are within the approved budget, (it being understood that the approved budget shall include an allowance of [**] percent ([**]%) for cost overruns), provided such overruns, upon their occurrence, are appropriately documented and justified. It is further understood that MERRIMACK's obligations to perform any given Development Program activities shall be subject to prior approval by the JSC of a budget therefor. For purposes of this Agreement, an overrun shall be justified if it is incurred by Merrimack in activities that are pursuant to the Global Development Plan approved by the JSC and the objectives thereof. All budgets established by the JSC relating to the conduct of activities by MERRIMACK pursuant to Section 3.2(c), Section 3.4(a), Section 4.1(a) and Section 4.1(b) shall be consistent with, but in any case not superior than, a budget of SANOFI-AVENTIS covering the conduct of comparable activities by and/or on behalf of SANOFI-AVENTIS.

Section 3.2 Certain Development Responsibilities of Each Party.

(a) Except as otherwise set forth in clauses (c) and (d) below, as to each Collaboration Compound and Licensed Product in each indication, SANOFI-AVENTIS shall be responsible for conducting all clinical trials that are required to obtain Regulatory Approval to manufacture, market and sell such Collaboration Compound and Licensed Product in the Territory, including the clinical development of each Collaboration Compound and Licensed Product for each indication from and after Completion of PoC of such Collaboration Compound or Licensed Product for such indication.

(b) As further set forth in Article IV, (i) SANOFI-AVENTIS shall be responsible for preparing, filing, obtaining and maintaining all Regulatory Approvals necessary to develop, manufacture, market and sell Collaboration Compounds and Licensed Products in the Territory, and (ii) MERRIMACK shall be responsible for the regulatory activities assigned to MERRIMACK under the Global Development Plan.

(c) MERRIMACK shall have the right (but not the obligation) to conduct, in accordance with the Global Development Plan and under the oversight of the JSC, all (or part if MERRIMACK lacks the necessary capabilities or SANOFI-AVENTIS performs some trials, both as provided below in this Section 3.2(c)) of the human clinical trials that are contemplated under the Global Development Plan for each Collaboration Compound or Licensed Product for each indication through Completion of PoC (for clarity, through Completion of PoC with respect to each Therapeutic Product for each indication), of such Collaboration Compound or Licensed Product for such indication, on a Collaboration Compound-by-Collaboration Compound, Licensed Product-by-Licensed Product and indication-by-indication basis; provided, that MERRIMACK [**] (or SANOFI-AVENTIS pursuant to Section 2.1(f)) [**] that MERRIMACK lacks the necessary capabilities and resources to conduct such human trials. SANOFI-AVENTIS shall notify MERRIMACK sufficiently in advance of the expected commencement of any such human clinical trial to allow MERRIMACK (i) [**], and (ii) [**] if MERRIMACK were to [**]. SANOFI-AVENTIS shall include in such notice to MERRIMACK reasonably detailed information with respect to the expected scope, protocols, criteria and endpoints of such human clinical trial and shall promptly provide to MERRIMACK other information concerning such proposed human clinical trial as may be reasonably requested by MERRIMACK. For purposes of clarity, once MERRIMACK determines to undertake the conduct of a human clinical trial for a particular Collaboration Compound or Licensed Product

for a given indication hereunder, MERRIMACK shall have the right to [**] of PoC for such Collaboration Compound or Licensed Product for such indication. MERRIMACK [**] SANOFI-AVENTIS, and shall give due consideration to SANOFI-AVENTIS' comments and requirements, with respect to the [**] by MERRIMACK hereunder, and such [**] JDC and JSC, be included in the Global Development Plan. In any case, it is understood and agreed that, without limiting MERRIMACK's right to [**] as contemplated under this Section 3.2(c), SANOFI-AVENTIS shall always be entitled to [**] by SANOFI-AVENTIS could be redundant or repetitive with trials conducted by MERRIMACK pursuant to MERRIMACK's right to conduct trials as provided in this Section 3.2(c)).

(i) If MERRIMACK elects to conduct any such human clinical trial (and the JSC or SANOFI-AVENTIS [**] that MERRIMACK lacks the necessary capabilities and resources to conduct such human clinical trial), MERRIMACK shall use Commercially Reasonable

Efforts to do so in accordance with the Global Development Plan and shall provide SANOFI-AVENTIS, through the JDC, with quarterly written reports summarizing in reasonable detail MERRIMACK's clinical development activities pursuant to the Global Development Plan.

(ii) If MERRIMACK elects not to conduct any such human clinical trial, or does not have the capabilities and resources necessary to conduct such human clinical trial, the JDC will determine how to conduct such human clinical trial; provided, that, MERRIMACK shall not be obligated to conduct such human clinical trial without its prior written consent.

(d) If pursuant to Section 3.2(c) MERRIMACK has elected to conduct a clinical trial (and the JSC or SANOFI-AVENTIS has not reasonably [**] that MERRIMACK lacks the necessary capabilities and resources to conduct such human clinical trial), then if Merrimack (x) materially fails to exercise Commercially Reasonable Efforts to perform and/or complete such study or (y) materially deviates from the protocols set forth in the applicable Global Development Plan in a manner that is not consistent with the exercise of Commercially Reasonable Efforts, or (z) otherwise materially fails to exercise Commercially Reasonable Efforts in conducting such study (any of (x), (y) or (z), a "Trial Diligence Breach"), the following shall apply:

(i) SANOFI-AVENTIS shall notify MERRIMACK in writing promptly upon forming the belief that a Trial Diligence Breach has occurred and include in such notice the specific facts upon which SANOFI-AVENTIS bases such belief and the actions that SANOFI-AVENTIS believes are necessary to remedy such Trial Diligence Breach; and

(ii) If (A) MERRIMACK does not remedy such Trial Diligence Breach in all material respects within [**] days after receiving notice of such Trial Diligence Breach from SANOFI-AVENTIS and (B) such Trial Diligence Breach materially adversely affects the value of such study, then SANOFI-AVENTIS shall be entitled to offset against any amounts otherwise payable to MERRIMACK under this Agreement the direct costs and expenses incurred by SANOFI-AVENTIS in re-performing clinical development work or any other work directly related thereto as a result of such Trial Diligence Breach.

(e) If pursuant to Section 3.2(c) MERRIMACK has elected to conduct a clinical trial (and the JSC or SANOFI-AVENTIS has not [**] that MERRIMACK lacks the necessary capabilities and resources to conduct such human clinical trial) and the JDC and/or the JSC have [**] such [**],

MERRIMACK shall nevertheless be entitled to subsequently decide that it does not have the necessary capabilities and resources to conduct such study, provided MERRIMACK gives SANOFI-AVENTIS [**] months' (or such shorter periods as the Parties may agree) notice during which MERRIMACK shall either continue to use Commercially Reasonable Efforts to perform all its obligations in the frame of such study so that MERRIMACK's decision does not generate any delay in the conduct of the concerned study, and appropriately transition the conduct of such study to SANOFI-AVENTIS or, at SANOFI-AVENTIS' election and request, promptly transition such study to SANOFI-AVENTIS, it being agreed that in any case all costs and expenses linked to such transition and to the transfer of the responsibility of such study to SANOFI-AVENTIS shall be borne by [**].

(f) Following Completion of PoC of a Collaboration Compound or Licensed Product for a given indication, on a Collaboration Compound-by-Collaboration Compound, Licensed Product-by-Licensed Product and indication-by-indication basis, the JDC shall update the Global Development Plan to reflect a mutually-agreed allocation of further research and development activities between the Parties with respect to such Collaboration Compound or Licensed Product for the given indication in a manner intended to take advantage of each Party's capabilities and competencies consistent with a principle of meaningful involvement by MERRIMACK. By way of example, as to each indication with respect to each Collaboration Compound or Licensed Product, MERRIMACK may be responsible, subject to MERRIMACK's agreement and the JSC approval, for conducting a number of Phase III Clinical Studies or for providing diagnostic research support activities (e.g., model, algorithm, threshold refinements and related *in vitro* and *in vivo* research).

(g) For purposes of facilitating the conduct of the Development Program, each Party shall provide to the other Party animal or human tissues, cells, blood samples and other materials ("Biological Materials") specified from time to time in the Global Development Plan. Each Party agrees to provide all such Biological Materials to the other Party in accordance with the Global Development Plan. The Parties agree that:

(i) all Biological Materials provided by one Party to the other shall be used solely for research and development purposes in material compliance with all applicable federal, state or local laws, regulations and guidelines;

(ii) all such Biological Materials are provided without any warranties, express or implied;

(iii) the Party providing such Biological Materials shall obtain (or cause its Third Party collaborators to obtain or certify that they have obtained) all appropriate and required consents from the source of such Biological Materials; and

(iv) Biological Materials provided by one Party to the other shall not be made available by the other Party to any Third Party except as contemplated in the Global Development Plan or upon the prior written consent of the Party providing such Biological Materials.

Section 3.3 Designation of Back-Up Compounds. During the Exclusivity Period, SANOFI-AVENTIS may designate, subject to agreement of the Parties (such agreement not to

be unreasonably withheld, conditioned or delayed), up to a total of [**] monoclonal antibodies targeting ErbB3 that are determined as being suitable for development as a substitute for MM-121 under the Development Program (each, a "Back-Up Compound") and are Covered by the Licensed Intellectual Property. Subject to agreement by the Parties as to the designation of such Back-Up Compound(s) and with respect to any necessary amendments to the Global Development Plan to reflect the inclusion of such Back-Up Compound(s), such Back-Up Compounds shall be deemed Collaboration Compounds hereunder. Notwithstanding anything in this Agreement to the contrary, the Parties acknowledge and agree that MERRIMACK does not Control or otherwise possess, as of the Execution Date, any Back-Up Compound, and shall have no obligation to generate any Back-Up Compound during the Term unless otherwise agreed by MERRIMACK. For purposes of clarity, after the end of the Exclusivity Period, the Parties may not designate any Back-Up Compounds for inclusion as Collaboration Compounds under this Agreement.

Section 3.4 Manufacture and Supply.

(a) As soon as practicable after the Effective Date, MERRIMACK shall use Commercially Reasonable Efforts to transition the manufacturing of MM-121 (and, as relevant, of Diagnostic Product(s), Therapeutic Product(s) and/or other Collaboration Compound(s)) to SANOFI-AVENTIS (or its designated Affiliate or Third Party manufacturer).

(i) As part of such transition of manufacturing to SANOFI-AVENTIS, MERRIMACK shall:

(A) subject to SANOFI-AVENTIS' prior approval of a budget as contemplated by Section 3.4(a)(ii) and cooperation in accordance with Section 3.4(a)(iii), use Commercially Reasonable Efforts to transfer to SANOFI-AVENTIS, as promptly as practicable, but in any case within [**] days from the Effective Date, copies of all regulatory filings and other Licensed Technology that are necessary or useful for SANOFI-AVENTIS (or the Affiliate or Third Party manufacturer identified by SANOFI-AVENTIS) to manufacture MM-121, including manufacturing processes, analytical methods, specifications, protocols, assays, batch records, quality control data, transportation and storage requirements, and other manufacturing documentation or files (collectively, "Manufacturing Technology"). For clarity, if, as of the Effective Date, MERRIMACK Controls any Manufacturing Technology related to the manufacture of other Collaboration Compounds or of Therapeutic Product(s) or of Diagnostic Product(s), Section 3.4(a)(i)(A) and Section 3.4(a)(i)(B) shall apply to such Manufacturing Technology; and **[**]**(B) provide all reasonably necessary technical assistance to SANOFI-AVENTIS with respect to the use and implementation of such Manufacturing Technology as may be mutually agreed by the Parties.

(ii) SANOFI-AVENTIS shall pay MERRIMACK, within [**] days following MERRIMACK's invoice, for (A) all internal costs of MERRIMACK personnel at the FTE Rate, plus (B) all out-of-pocket costs and expenses incurred by MERRIMACK, with respect to Section 3.4(a)(i) to the extent incurred in performing the transition activities contemplated hereunder, and provided that all aforesaid costs and expenses do not exceed the amounts set forth in the corresponding budget previously approved by the JSC, it being understood that such approved budget may include an allowance of [**] percent ([**]%) for cost overruns, provided

such overruns, upon their occurrence, are appropriately documented and justified (as provided in Section 3.1(c)), and that MERRIMACK's obligations to perform activities pursuant to Section 3.4(a)(i) shall be subject to prior approval by the JSC of a budget therefor (as provided in Section 3.1(c)).

(iii) SANOFI-AVENTIS shall cooperate with MERRIMACK in undertaking all such transition activities, including with respect to the scheduling and planning of associated meetings.

(b) Without limiting the generality of each Party's rights and obligations under clause (a) above, MERRIMACK shall manufacture and supply (or have manufactured or supplied) to SANOFI-AVENTIS, at MERRIMACK's Manufacturing Cost and on a delivery schedule and other customary supply terms and conditions as are mutually agreed by the Parties, MM-121 conforming to the applicable specifications, in quantities required for human clinical trials as set forth in the Global Development Plan, until such time as manufacturing responsibility is transferred to SANOFI-AVENTIS hereunder; provided, however, that,

(i) without the prior written agreement of MERRIMACK, MERRIMACK shall not be obligated to supply more than [**] kilograms of clinical supply of MM-121; and

(ii) MERRIMACK may continue to provide additional quantities of clinical supply of MM-121, at [**] percent ([**]%) of MERRIMACK's Manufacturing Costs, if requested by SANOFI-AVENTIS and subject to MERRIMACK's agreement on quantity and timing, taking into account MERRIMACK's available resources, capacity and planning constraints, solely to the extent necessary to continue to support the Global Development Plan until such time as manufacturing responsibility is transferred to SANOFI-AVENTIS hereunder.

(iii) Each delivery of MM-121 shall be accompanied with a certificate of analysis showing the conformity of the supplied MM-121 to the applicable specifications. SANOFI-AVENTIS shall have the right to analyze the conformity of the supplied MM-121 to such applicable specifications (using the methods of control provided by MERRIMACK) and if there is any non-conformity of the supplied MM-121 to the specifications, no Manufacturing Costs related to the non-conforming quantities shall be borne by SANOFI-AVENTIS. SANOFI-AVENTIS shall notify MERRIMACK of any non-conformity within [**] days of receipt of the applicable delivery. In the absence of such notification by SANOFI-AVENTIS within the aforesaid time period, the quantities of MM-121 delivered to SANOFI-AVENTIS shall be deemed to be conforming to the applicable specifications. If MERRIMACK disagrees on such non-conformity, it shall notify SANOFI-AVENTIS thereof within [**] days from SANOFI-AVENTIS' notification. Any dispute between the Parties with respect to the conformity of MM-121 with the applicable specifications will be resolved by an independent analytical laboratory jointly selected by SANOFI-AVENTIS and MERRIMACK. The costs of such laboratory shall be borne by SANOFI-AVENTIS if the applicable quantities of MM-121 are declared by the laboratory to be conforming to the applicable specifications and shall be borne by MERRIMACK if such quantities are declared by the laboratory to be non-conforming.

(c) SANOFI-AVENTIS shall pay MERRIMACK for all Manufacturing Costs incurred by MERRIMACK, even if incurred prior to the Effective Date, for providing clinical supply of MM-121 to SANOFI-AVENTIS hereunder within [**] days following delivery of such supply and MERRIMACK's invoice therefor. It is understood that such costs (if previously paid by SANOFI-AVENTIS) shall be reimbursed by MERRIMACK in case of non-conformity of MM-121 to the applicable specifications, pursuant to Section 3.4(b)(iii) above.

(d) SANOFI-AVENTIS (or its designated Affiliate or Third Party manufacturer) shall assume manufacturing responsibility for clinical and commercial supply, including all costs of such supply and the costs of building and maintaining inventory, of Collaboration Compounds and Licensed Products throughout the Territory as soon as practicable after the Effective Date, but in no event later than the start of Phase III Clinical Studies for the first Collaboration Compound, Therapeutic Product and/or Diagnostic Product, as relevant. If requested by MERRIMACK, SANOFI-AVENTIS shall purchase from MERRIMACK, at MERRIMACK's Manufacturing Cost, any useable remaining inventory of MM-121 which MERRIMACK has manufactured in

accordance with the Global Development Plan prior to SANOFI-AVENTIS's assumption of manufacturing responsibility hereunder, to the extent that SANOFI-AVENTIS has not previously purchased such inventory of MM-121 from MERRIMACK.

Section 3.5 Development Reports. SANOFI-AVENTIS shall provide written reports to MERRIMACK within [**] days after the end of each [**] month period during each calendar year during the Term, setting forth in reasonable detail SANOFI-AVENTIS's and its Affiliates' and sublicensees' (a) activities and progress during such preceding [**] month period related to the pre-commercial research, development and manufacture of Collaboration Compounds and Licensed Products, including information concerning clinical studies, achievement of development and regulatory event milestones, filing of applications for and securing of Regulatory Approvals, sublicensing efforts, and the territories (by each Major Territory, if relevant, and the rest of the world) in which the foregoing activities are conducted, such information to be provided separately for each Therapeutic Product and Diagnostic Product, and (b) any such planned research, development and manufacturing activities in the next [**] month period, including expected timelines. MERRIMACK shall provide similar semi-annual reports for any development activities that MERRIMACK may conduct hereunder with respect to Collaboration Compounds or Licensed Products.

Article IV
Regulatory Matters

Section 4.1 Overview; Regulatory Filings.

(a) Promptly following the Effective Date, MERRIMACK shall:

(i) transfer to SANOFI-AVENTIS all Regulatory Approvals and regulatory filings submitted to any Regulatory Authority for Collaboration Compounds and Licensed Products that are in MERRIMACK's name and Controlled by MERRIMACK; or

(ii) to the extent that such transfer is not permitted under applicable Laws, provide to SANOFI-AVENTIS a right of reference or use to such Regulatory Approvals and regulatory filings.

(b) Subject to Section 4.1(a) above, following the Effective Date, SANOFI-AVENTIS shall own and be responsible for preparing, filing and maintaining all regulatory filings and Regulatory Approvals that are required for the research, development, manufacture, use, marketing or sale of Collaboration Compounds and Licensed Products in the Territory, provided, that:

(i) MERRIMACK shall provide SANOFI-AVENTIS with assistance as may be reasonably requested by SANOFI-AVENTIS with respect to regulatory filings in accordance with the Global Development Plan;

(ii) MERRIMACK shall have a right of reference or use to such regulatory filings and Regulatory Approvals to the extent necessary for the conduct of MERRIMACK's activities under this Agreement;

(iii) SANOFI-AVENTIS shall provide MERRIMACK with copies of all regulatory submissions to, and material communications with, Regulatory Authorities in the Major Territories and MERRIMACK shall have the right to review and comment on such submissions and communications as to the USA, in each case as set forth in Section 4.2(a) below; and

(iv) SANOFI-AVENTIS shall take such actions and otherwise cooperate with MERRIMACK as may be reasonably requested by MERRIMACK to enable MERRIMACK to conduct the clinical trials and perform other development, regulatory and manufacturing activities assigned to MERRIMACK under the Global Development Plan (for clarity, all filings and all interactions with Regulatory Authorities shall be conducted and implemented by and shall be in the name of SANOFI-AVENTIS).

(c) SANOFI-AVENTIS shall pay MERRIMACK, within [**] days following MERRIMACK's monthly invoice, for (i) all internal costs of MERRIMACK personnel at the FTE Rate, plus (ii) all out-of-pocket costs and expenses incurred by MERRIMACK, with respect to each of clause (i) and (ii) to the extent incurred in transferring to SANOFI-AVENTIS Regulatory Approvals and regulatory filings (or providing SANOFI-AVENTIS with a right of reference thereto), providing regulatory assistance to SANOFI-AVENTIS, and performing other regulatory activities assigned to MERRIMACK under the Global Development Plan, provided that (i) all the foregoing is in accordance with the costs and expenses forecasted in the applicable budget as approved by the JSC or is additionally requested by SANOFI-AVENTIS, it being understood that such approved budget shall include an allowance of [**] percent ([**]%) for cost overruns (except for any budget, or portion thereof, covering the costs of MERRIMACK transferring to SANOFI-AVENTIS Regulatory Approvals or regulatory filings hereunder (or providing SANOFI-AVENTIS with a right of reference thereto), which budget, or portion thereof, shall not include such an allowance for overruns), provided such overruns, upon their occurrence, are appropriately documented and justified (as provided in Section 3.1(c)), and that MERRIMACK's obligations to perform activities pursuant to Sections 4.1(a) and 4.1(b)(i) shall

be subject to prior approval by the JSC of a budget therefor (as provided in Section 3.1(c)), and (ii) SANOFI-AVENTIS shall not be required to pay MERRIMACK any costs incurred by MERRIMACK in conducting activities with respect to regulatory matters which have been undertaken at MERRIMACK's sole election and not requested by SANOFI-AVENTIS or assigned to MERRIMACK under the Global Development Plan.

Section 4.2 Communications with Regulatory Authorities.

(a) Following the Effective Date, SANOFI-AVENTIS shall be responsible for all submissions to, and communications and interactions with, Regulatory Authorities in the Territory with respect to Collaboration Compounds and Licensed Products, provided, that:

(i) SANOFI-AVENTIS shall keep MERRIMACK promptly informed regarding SANOFI-AVENTIS's (or its Affiliate's or sublicensee's) regulatory strategy, planned regulatory submissions and material communications with Regulatory Authorities in the Major Territories with respect to all Collaboration Compounds and Licensed Products, including any changes to such strategy, submissions or communications;

(ii) SANOFI-AVENTIS shall provide MERRIMACK with copies, for information, of regulatory submissions to, and material communications with, any Regulatory Authorities in the Major Territories relating to Collaboration Compounds and Licensed Products and MERRIMACK shall have an opportunity to review and comment on all planned regulatory submissions to, and material communications with, Regulatory Authorities relating to clinical trials referenced in clause (iii) below; and

(iii) As to any human clinical trial for a particular Collaboration Compound or Licensed Product for a given indication conducted or to be conducted by MERRIMACK under the Global Development Plan, SANOFI-AVENTIS shall give due consideration in good faith to incorporating any and all comments provided by MERRIMACK on any planned regulatory submissions to, or material communications with, any Regulatory Authorities in the Major Territories with respect to such clinical trial (or the results thereof) or the Collaboration Compound or Licensed Product used in such clinical trial, unless such comments are unreasonable.

(b) In addition to each Party's rights and obligations under clause (a):

(i) SANOFI-AVENTIS shall provide MERRIMACK, if feasible, with reasonable advance notice of any material meeting or substantive telephone conference with the FDA, MHLW or EMEA relating to Collaboration Compounds or Licensed Products; and

(ii) As to any human clinical trial for a particular Collaboration Compound or Licensed Product for a given indication conducted or to be conducted by MERRIMACK under the Global Development Plan, MERRIMACK shall have the right to attend and participate in any such material meeting or material conference call with such Regulatory Authorities relating to such clinical trial (or the results thereof) or the Collaboration Compound or Licensed Product used in such clinical trial.

(c) Without limiting the generality of any of the foregoing in this Section 4.2, SANOFI-AVENTIS shall also promptly provide MERRIMACK with a copy of all material correspondence that SANOFI-AVENTIS (or its Affiliate or sublicensee) receives from, or submits to, any Regulatory Authorities in the Major Territories, including contact reports concerning conversations or substantive meetings, contact reports of all Regulatory Authority interactions concerning conversations or substantive meetings, all IND annual reports (including any equivalent filings outside the US), and cover letters of all agency submissions (it being understood that MERRIMACK may request, and shall then receive, copies of all attachments to any such cover letters) relating to any Collaboration Compound or Licensed Product. SANOFI-AVENTIS shall also provide MERRIMACK with any meeting minutes that SANOFI-AVENTIS prepares that reflect material communications with any Regulatory Authorities in the Major Territories regarding any Collaboration Compound or Licensed Product.

Section 4.3 Product Withdrawals and Recalls. If any Regulatory Authority (a) threatens, initiates or advises any action to remove any Licensed Product from the market in the Territory, or (b) requires or advises either Party or such Party's Affiliates or sublicensees to distribute a "Dear Doctor" letter or its equivalent regarding use of such Licensed Product in the Territory, then MERRIMACK or SANOFI-AVENTIS, as applicable, shall notify the other Party of such event within [**] Business Days (or sooner if required by applicable Law) after such Party becomes aware of the action, threat, advice or requirement (as applicable). The JSC will discuss and attempt to agree upon whether to recall or withdraw a Licensed Product in the Territory; provided, however, that if the Parties fail to agree within an appropriate time period or if the matter involves a safety issue that, in order to protect patient safety, does not allow for sufficient time for a discussion at the JSC level (in which event SANOFI-AVENTIS as the holder of the NDA for the Licensed Product at issue shall nonetheless provide advance notice and consultation with MERRIMACK to the maximum practical extent prior to making a decision), SANOFI-AVENTIS shall decide whether to recall or withdraw such Licensed Product in the Territory and shall undertake any such recall or withdrawal at its own cost and expense. If requested by SANOFI-AVENTIS, MERRIMACK shall reasonably cooperate with SANOFI-AVENTIS in such efforts to recall or withdraw such Licensed Product in the Territory.

Section 4.4 Pharmacovigilance; Safety Data Reporting. The collaboration between the Parties may involve exchanging safety information and adverse events for the Licensed Product(s). Therefore, the Parties agree to enter into negotiations to set up, if required, a detailed safety data exchange agreement (the "SDEA") in due time (i.e., prior to the start of clinical development by SANOFI-AVENTIS) to arrange the pharmacovigilance database transfer to SANOFI-AVENTIS (if applicable) and any future pharmacovigilance exchange between the Parties when relevant (e.g., in the case where Merrimack is sponsoring clinical studies or co-developing Licensed Product(s)). Each Party shall ensure, through its JDC representatives or designated personnel, that the competent pharmacovigilance groups or personnel from such Party begin to negotiate and establish the appropriate SDEA no later than [**] months before SANOFI-AVENTIS commences clinical development hereunder. The SDEA shall be negotiated in good faith between the pharmacovigilance departments of each Party. The SDEA shall define the roles and responsibilities of both Parties in terms of pharmacovigilance and define the detailed safety exchange required to permit compliance by both Parties with safety reporting

requirements to Regulatory Authorities and other entities in the respective Territories and ensure worldwide safety surveillance.

Section 4.5 Regulatory Compliance. Each Party agrees that in performing its obligations under this Agreement, (a) it shall comply in all material respects with all applicable FDA and other current international regulatory requirements and standards, including FDA's current Good Manufacturing Practices and Good Clinical Practices, and comparable foreign regulatory standards, and other applicable rules, regulations and requirements, and (b) it will not employ or use the services of any person that has been debarred under Section 306(a) or 306(b) of the Federal Food, Drug, and Cosmetic Act.

Article V
Commercialization; Co-Promotion

Section 5.1 Overview. Subject to MERRIMACK's Co-Promotion of Co-Promoted Products and the other terms and conditions of this Agreement, SANOFI-AVENTIS will have sole responsibility for the commercialization of Licensed Products in the Field in the Territory, including all costs and expenses relating thereto, and for booking sales of Licensed Products throughout the Territory.

Section 5.2 Commercialization Reports. With respect to each Licensed Product developed pursuant to this Agreement, commencing with the calendar year in which an application for Marketing Authorization is first filed with respect to such Licensed Product in any Major Territory, and for each

subsequent calendar year thereafter, SANOFI-AVENTIS shall provide to MERRIMACK (through the JCC, if the JCC is in place) for MERRIMACK's review and comment, within [**] days following the end of each [**] month period during each calendar year during the Term, a written report setting forth in reasonable detail SANOFI-AVENTIS' and its Affiliates' and sublicensees' (a) activities and progress during such preceding [**] month period related to the commercialization of Collaboration Compounds and Licensed Products, including information concerning First Commercial Sale, achievement of sales level event milestones, and the territories (by each Major Territory and the rest of the world) in which the foregoing activities are conducted, such information to be provided separately for each Therapeutic Product and Diagnostic Product, and (b) any planned commercialization activities in the next [**] month period, including expected timelines. For purposes of clarity, this Section 5.2 shall remain in effect regardless of any opt-out, waiver or termination of Co-Promotion rights with respect to Co-Promoted Product(s) by MERRIMACK hereunder.

Section 5.3 Co-Promotion Right; MERRIMACK Election to Opt-Out.

(a) MERRIMACK shall have the right to participate in the Co-Promotion of any Therapeutic Product in the USA until such Therapeutic Product is permanently discontinued or no longer sold in the USA, which Co-Promotion right shall automatically include the right to Co-Promote any companion Diagnostic Product for such Therapeutic Product (such Therapeutic Product, together with any companion Diagnostic Product, the "Co-Promoted Product"); provided, that MERRIMACK may elect to opt out of Co-Promoting a particular Co-Promoted Product by providing written notice to SANOFI-AVENTIS at least [**] months prior to the planned US Filing Date for such Co-Promoted Product established by the JSC (the "Co-

Promotion Opt-Out Period"), based on the most recent planned US Filing Date made available to MERRIMACK for such Co-Promoted Product.

(b) If MERRIMACK elects to opt out of Co-Promoting any Co-Promoted Product within the Co-Promotion Opt-Out Period, then MERRIMACK shall have no further right to participate in the Co-Promotion of any Co-Promoted Product in the USA (for clarity, and notwithstanding anything herein to the contrary, MERRIMACK shall no longer have the right to Co-Promote any and all subsequent Co-Promoted Products in the USA, and any existing Co-Promoted Products, even those with respect to which MERRIMACK has not exercised its opt-out right or terminated Co-Promotion hereunder).

(c) If MERRIMACK does not exercise its right to opt out of Co-Promoting any Co-Promoted Product in the USA within the Co-Promotion Opt-Out Period, then:

(i) MERRIMACK shall be deemed to have waived its right to opt out of Co-Promoting such Co-Promoted Product in the USA (but without limiting MERRIMACK's right to terminate Co-Promotion of such Co-Promoted Product pursuant to Section 5.6); and

(ii) MERRIMACK shall use Commercially Reasonable Efforts to perform the Co-Promotion of such Co-Promoted Product(s), subject to and in accordance with the terms and conditions of this Agreement and the Commercialization Plan, including MERRIMACK's right to terminate Co-Promotion of such Co-Promoted Product pursuant to Section 5.6.

(d) From and after (i) any termination of MERRIMACK's right to Co-Promote Licensed Products hereunder, (ii) the expiration of the Co-Promote Term, or (iii) MERRIMACK's opt-out of Co-Promotion under this Section 5.3, MERRIMACK shall have no further obligation to pay any Marketing Costs (except for those Marketing Costs incurred before the date of such termination, expiration or opt-out) or to perform any Co-Promotion activities.

Section 5.4 Commercialization Plan; Performance of Co-Promotion Responsibilities.

(a) With respect to each Co-Promoted Product, unless and until MERRIMACK opts out of Co-Promotion of any Co-Promoted Product pursuant to Section 5.3 (in which case MERRIMACK shall no longer have the right to Co-Promote any Co-Promoted Product), or terminates Co-Promotion of such Co-Promoted Product pursuant to Section 5.6 (in which case MERRIMACK shall be deemed to have terminated Co-Promotion with respect to all Co-Promoted Products):

(i) The JCC shall prepare a Commercialization Plan to provide for the Co-Promotion of such Co Promoted Product(s) in the USA based on the best commercial interests of such Co-Promoted Product(s).

(ii) The Commercialization Plan shall address and provide for the following matters, among others, with respect to such Co-Promoted Product(s), based on the principles set forth on Exhibit D (such principles, subject to amendment from time to time by mutual agreement of the Parties, the "Co-Promotion Guidelines"):

(A) the annual budgeted total detailing effort for the USA;

(B) the methods of allocation of the total detailing effort between the Parties (for clarity the total detailing effort being borne for [**] percent ([**]%) by MERRIMACK and for [**] percent ([**]%) by SANOFI-AVENTIS); and

(C) the number and position of details and categories of professionals or institutions to be targeted, and the allocation of such professionals or institutions between the Parties.

(iii) The sales management teams from each Party shall cooperate in good faith to coordinate detailing activities in order to maximize product sales by, for example, maximizing geographic coverage in the USA, eliminating unnecessary duplication, and enhancing market penetration. Each Party shall use Commercially Reasonable Efforts to perform those tasks and responsibilities assigned to it in the Commercialization Plan with respect to each Co-Promoted Product, and in accordance with applicable Laws.

(iv) Each Party shall be responsible for staffing, supervising and compensating (including incentives) its own sales personnel, and for all costs associated with such activities, including internal costs and out-of-pocket expenses related to training (collectively, "Sales Force Costs").

(v) In an effort to provide consistency in the promotion of the Co-Promoted Product(s), (A) the respective sales personnel of both Parties shall undergo a common training, under the leadership and supervision of SANOFI-AVENTIS (for clarity the direct costs thereof being borne [**]% by MERRIMACK and [**]% by SANOFI-AVENTIS) and (B) the Parties will, to the extent permitted by applicable Laws, seek to harmonize the compensation (including incentives) granted to their respective sales personnel engaged in Co-Promotion of Co-Promoted Products.

(vi) SANOFI-AVENTIS shall be responsible for development of product-specific training materials, with input from MERRIMACK, and each Party shall use the same training materials for its respective sales personnel.

(vii) During the Co-Promote Term, SANOFI-AVENTIS shall be responsible for [**] percent ([**]%) and, subject to Section 8.4(e)(ii)(B), MERRIMACK shall be responsible for [**] percent ([**]%) of the total direct and identifiable medical affairs, marketing and promotion costs for each Co-Promoted Product in the USA, including (A) costs of developing product-specific training materials for the USA, and (B) costs incurred in the USA for phase IV clinical trials, but excluding all internal overhead and administrative costs and expenses (such marketing and promotion costs, collectively, "Marketing Costs"). For clarity, as to any Co-Promoted Product, phase IV clinical trial means a clinical trial of such Co-Promoted Product initiated after receipt of Marketing Authorization from the FDA for the Co-Promoted Product, but excluding any clinical trial conducted as a condition to the granting of Marketing Authorization by the FDA or any other Regulatory Authority.

(b) Neither Party shall, directly or indirectly, hire or attempt to hire any individual who is a member of the other Party's sales force and engaged in Co-Promotion activities pursuant to this Agreement while the Parties are Co-Promoting any Co-Promoted Product; provided, however, that nothing in this Section 5.4(b) shall prevent a Party from engaging in soliciting activities of a general nature (not directed at any particular individual), such as advertisements in a newspaper or posting of job opportunities.

(c) The Parties acknowledge that MERRIMACK's right to Co-Promote Licensed Products in the USA is of a personal nature, and consequently the Parties agree that (i) except as permitted in Section 16.2 (but subject to clause (iii) of this Section 5.4(c)), MERRIMACK may not assign to any Third Party its right to Co-Promote any Licensed Product hereunder, (ii) MERRIMACK shall not subcontract any of its Co-Promotion obligations (and in particular shall not utilize the services of a contract marketing organization or otherwise utilize sales force personnel provided by a Third Party), without SANOFI-AVENTIS's prior written consent and (iii) in case of a change of control of MERRIMACK in which MERRIMACK becomes an Affiliate of a competitor (as defined below) of SANOFI-AVENTIS or an assignment of this Agreement by MERRIMACK (as permitted in accordance with Section 16.2) to a competitor (as defined below) of SANOFI-AVENTIS, MERRIMACK's right to Co-Promote Licensed Product(s) hereunder shall immediately terminate (i.e., if at the date of such change of control or permitted assignment MERRIMACK is not yet conducting any Co-Promotion of Licensed Product(s), MERRIMACK shall have no right to do so thereafter and if at the time of such change of control or permitted assignment MERRIMACK is conducting Co-Promotion of Licensed Product(s), then upon SANOFI-AVENTIS' request, MERRIMACK shall cease to conduct such Co-Promotion). For the purpose of this clause, "competitor" means any person or entity that, as of the time of the change of control of MERRIMACK (or of the permitted assignment), either (y) is one of the [**] largest worldwide oncology companies as of December 31 of the most recently completed calendar year as measured by oncology product sales (or is controlling, controlled by or under common control with a person or entity that meets the criteria described in this clause (y)), or (z) is engaged in clinical development or commercial sale of a Competing Product (or is controlling, controlled by or under common control with a person or entity that meets the criteria described in this clause (z)).

(d) For purposes of clarity, from and after MERRIMACK's exercise of its right to opt out of Co-Promotion of any Co-Promoted Product pursuant to Section 5.3, or MERRIMACK's termination of Co-Promotion of any Co-Promoted Product pursuant to Section 5.6, (i) MERRIMACK shall have no further obligations with respect to the Co-Promotion of any and all Licensed Products, and (ii) SANOFI-AVENTIS shall be solely responsible for all sales, marketing and other commercialization activities with respect to any and all Licensed Products throughout the Territory, and all costs and expenses associated therewith.

Section 5.5 Complaints.

(a) With respect to each Co-Promoted Product, unless and until MERRIMACK exercises its right to opt out of Co-Promotion of any Co-Promoted Product pursuant to Section 5.3, or terminates Co-Promotion of any Co-Promoted Product pursuant to Section 5.6, the JCC will develop and implement, and the Parties shall abide by:

(i) a customary policy for handling complaints that may be made, alleged or threatened by a Third Party with respect to the use of any promotional, advertising, patient information, communication and educational materials by a Party relating to such Co-Promoted Product in the USA; and

(ii) a customary policy for handling and investigating complaints made, alleged or threatened by a Third Party with respect to the manufacturing, handling or storage of such Co-Promoted Product.

(b) SANOFI-AVENTIS shall be responsible for handling all complaints with respect to all Co-Promoted Products, and all costs and expenses associated therewith.

Section 5.6 Termination of Co-Promotion Rights. Unless and until MERRIMACK opts out of Co-Promoting any Co-Promoted Product pursuant to Section 5.3, MERRIMACK shall be obligated to perform its Co-Promotion obligations with respect to all Licensed Products until at least the [**] anniversary of the First Commercial Sale of the first Co-Promoted Product in the USA; provided, however, that (in the case where MERRIMACK has not elected to opt out of Co-Promoting any Co-Promoted Product) MERRIMACK shall have the right to terminate its Co-Promotion obligations with respect to all Co-Promoted Products effective any time on or after the [**] anniversary of the First Commercial Sale of the first Co-Promoted Product in the USA by

providing to SANOFI-AVENTIS at least [**] days prior written notice to SANOFI-AVENTIS (for clarity, such termination shall apply to all Licensed Products marketed in the USA).

Section 5.7 Product Labeling. To the extent permitted under applicable Laws:

(a) all Licensed Products shall carry the SANOFI-AVENTIS name and logo on the product label and shall state that the Licensed Product is licensed from MERRIMACK; and

(b) all written promotional materials associated with each Licensed Product shall indicate that the Licensed Product was licensed from MERRIMACK.

Article VI
Diligence; Exclusivity; [**]

Section 6.1 Diligence Obligations. SANOFI-AVENTIS shall use Commercially Reasonable Efforts to research, develop and obtain all necessary Regulatory Approvals for, and, upon receipt of such Regulatory Approvals, to commercialize at least one (1) Therapeutic Product and at least one (1) companion Diagnostic Product for such Therapeutic Product in each of the Major Territories. SANOFI-AVENTIS shall be deemed to have used Commercially Reasonable Efforts hereunder with respect to its development and commercialization activities with respect to a Licensed Product in the EU if SANOFI-AVENTIS uses Commercially Reasonable Efforts to develop and commercialize such Licensed Product in any [**] or more of the Major EU Countries.

Section 6.2 Exclusivity.

(a) During the Exclusivity Period, neither Party nor any of its Affiliates shall, by itself or through, with or on behalf of any Third Party, undertake the clinical development, manufacture of commercial quantities, or commercialization anywhere in the Territory of any monoclonal antibody or standalone single antibody fragment, the primary molecular target of which is ErbB3, for use in the Field (a "Competing Product"), other than pursuant to this Agreement; provided, however, that this Section 6.2(a) shall not in any way limit an Affiliate of a Party that controls such Party (a "Parent") from conducting any of the foregoing activities (either directly or through Affiliates other than the Party) as to a Competing Product that was the subject of a research, development or commercialization program initiated by the Parent prior to the date that the Parent became an Affiliate of such Party, provided that, if requested by SANOFI-AVENTIS, the Parent will provide SANOFI-AVENTIS, subject to confidentiality and non-use obligations of SANOFI-AVENTIS, with reasonable evidence substantiating the pre-existing nature of such program.

(b) In the event that either Party, or any of its Affiliates, commits a breach of the exclusivity provision set forth in clause (a) above at any time during the Exclusivity Period, without limiting any other rights or remedies that the other Party may have, in contract, law or in equity, the breaching Party and its Affiliates shall be prohibited from pursuing the clinical development, commercial manufacture or commercialization of any Competing Product which was the subject of the activity(ies) constituting such breach, after the end of the Exclusivity Period for the remainder of the Term.

(c) [**]. MERRIMACK hereby [**] to SANOFI-AVENTIS [**] on the terms and conditions set forth in this Section 6.3.

(a) If MERRIMACK [**] with a [**] (other than [**] and other [**] to which MERRIMACK does not [**] to such [**] to [**] and [**] in [**] and [**] (the [**], MERRIMACK shall [**] of [**] to SANOFI-AVENTIS and SANOFI-AVENTIS shall [**] MERRIMACK [**] within [**] days [**] as to whether SANOFI-AVENTIS [**] in [**]. Such [**] from MERRIMACK shall include a [**] of the [**] in MERRIMACK's possession with respect to the [**], to allow SANOFI-AVENTIS to [**]

(b) If, before the [**] of the [**], SANOFI-AVENTIS indicates that it is [**] the [**], the Parties shall [**] to [**] whether [**] as to the [**] on [**]

(c) If:

(i) SANOFI-AVENTIS does not [**] of the [**] that it is [**] in [**];

(ii) SANOFI-AVENTIS [**] before the [**] of the [**] that it has [**] in the [**]; or

(iii) SANOFI-AVENTIS [**] such [**] before the [**] of the [**] but the Parties are [**] with respect to the [**] within [**] days following [**] from SANOFI-AVENTIS in accordance with Section 6.3(a) that it is [**] in [**];

then, except as otherwise set forth in clause (d) below, SANOFI-AVENTIS's [**] to [**] of, or [**] with respect to, the [**] with MERRIMACK under this Section 6.3 [**] and have [**], and MERRIMACK shall be [**] and [**] relating to the [**] with any [**].

(d) In the event that the Parties are [**] with respect to the [**] within the [**] after [**] during the [**] pursuant to clause (c) (iii) above, and MERRIMACK, within the

[**] month period [**] with respect to the [**] that are [**], to [**] than the [**] last [**] during the [**] with respect to the [**], then MERRIMACK shall [**] to SANOFI-AVENTIS and SANOFI-AVENTIS shall [**] with MERRIMACK with respect to the [**]. If SANOFI-AVENTIS [**] with MERRIMACK with respect to the [**] on [**] to MERRIMACK within [**] days following MERRIMACK's [**] to SANOFI-AVENTIS of [**], SANOFI-AVENTIS's [**] of, or [**] with respect to, the [**] with MERRIMACK under this Section 6.3 shall [**] and [**], and MERRIMACK shall be [**] and [**] with any [**].

(e) If the [**] consists of [**] that include [**], then SANOFI-AVENTIS's [**] to [**] to [**] under this Section 6.3 shall apply only with respect to the [**], and [**] by MERRIMACK to a [**] to [**]. However if the [**] does [**] in [**], then SANOFI-AVENTIS' [**] to [**] to [**] under this Section 6.3 shall [**] MERRIMACK [**] in [**] in [**] as to which MERRIMACK has [**] SANOFI-AVENTIS of a [**].

For clarity, if the [**] consists of an [**] that [**] in a [**], then SANOFI-AVENTIS' [**] to [**] under this Section 6.3 shall apply thereafter [**] MERRIMACK [**] including [**] in [**] that [**] in other [**] as to which MERRIMACK [**] SANOFI-AVENTIS of a [**].

Article VII
Grant of Licenses

Section 7.1 MERRIMACK License Grants.

(a) Grant. Subject to the terms and conditions of this Agreement, MERRIMACK hereby grants to SANOFI-AVENTIS an exclusive, royalty-bearing right and license, with the right to grant sublicenses subject to Section 7.1(b), under Licensed Technology and Licensed Patent Rights, including MERRIMACK's rights to Joint Technology and Joint Patent Rights, to research, have researched, develop, have developed, make, have made, use, offer for sale, sell, have sold, import and export Collaboration Compounds and Licensed Products in the Field in the Territory.

(b) Sublicense Rights.

(i) Except as otherwise set forth in clause (ii) below and subject to the remainder of this Section 7.1(b), SANOFI-AVENTIS shall have the right to enter into sublicenses relating to the license granted in Section 7.1(a) to Third Parties or Affiliates with which SANOFI-AVENTIS has agreed to research, develop, manufacture or commercialize Collaboration Compounds and Licensed Products in the Territory, either jointly, in collaboration with or on behalf of SANOFI-AVENTIS.

(ii) Notwithstanding the foregoing, unless and until MERRIMACK opts out of Co-Promotion pursuant to Section 5.3, or terminates Co-Promotion pursuant to Section 5.6, with respect to any Co-Promoted Product in the USA, SANOFI-AVENTIS shall not have the right to enter into any sublicenses relating to any Co-Promoted Product in the USA without the prior written consent of MERRIMACK, not to be unreasonably withheld. In addition, during the Co-Promote Term for any Co-Promoted Product, SANOFI-AVENTIS shall not grant any rights to any Third Party or Affiliate in a manner that would undermine, conflict

with or restrict MERRIMACK's Co-Promotion rights with respect to such Co-Promoted Product in the USA, without the prior written consent of MERRIMACK.

(iii) Each sublicense granted by SANOFI-AVENTIS under this Section 7.1(b) shall be subject and subordinate to, and consistent with, the terms and conditions of this Agreement, and shall provide that any such sublicensee shall not further sublicense except on terms consistent with this Section 7.1(b). SANOFI-AVENTIS shall provide MERRIMACK with a copy of any sublicense granted pursuant to this Section 7.1(b) within thirty (30) days after the execution thereof. Such copy may be redacted to exclude confidential scientific information and other commercially-sensitive information required by a sublicensee to be kept confidential.

(iv) SANOFI-AVENTIS shall be responsible for the performance of its sublicensees, and shall ensure that any such sublicensees comply with all applicable provisions of this Agreement. In the event of a material default by any sublicensee under a sublicense agreement, SANOFI-AVENTIS will inform MERRIMACK and take such action, after consultation with MERRIMACK, which in SANOFI-AVENTIS's reasonable business judgment will address such default.

Section 7.2 SANOFI-AVENTIS License Grants. Subject to the terms and conditions of this Agreement, SANOFI-AVENTIS hereby grants to MERRIMACK and its Affiliates a non-exclusive, non-royalty bearing license in the Territory, without the right to grant sublicenses except as contemplated by the Global Development Plan or as otherwise authorized in writing by SANOFI-AVENTIS, under the SANOFI-AVENTIS Technology and SANOFI-AVENTIS Patent Rights, including SANOFI-AVENTIS's rights to Joint Technology and Joint Patent Rights, for the sole purpose of performing MERRIMACK's obligations under this Agreement, including conducting the activities assigned to MERRIMACK under the Global Development Plan and, unless and until MERRIMACK opts out of Co-Promotion pursuant to Section 5.3, or terminates Co-Promotion pursuant to Section 5.6, with respect to any Co-Promoted Product, for purposes of Co-Promoting such Co-Promoted Product(s) hereunder.

Section 7.3 Disclosure of MERRIMACK Technology. Commencing on the Effective Date and continuing during the Development Term, MERRIMACK (consistent with its applicable confidential disclosure obligations to Third Parties, if any) shall use reasonable best efforts to disclose to SANOFI-AVENTIS (a) all Licensed Technology specified in the Global Development Plan, and (b) any Licensed Technology not specified in the Global Development Plan that MERRIMACK reasonably believes to be necessary or useful for the research, development, manufacture or commercialization of Collaboration Compounds or Licensed Products hereunder. In particular, MERRIMACK shall use reasonable best efforts during such period to disclose or make available to SANOFI-AVENTIS all material data and information in its possession or otherwise under its Control, regarding Licensed Products, Licensed Patent Rights and Licensed Technology, all the foregoing as may be necessary or useful for the research, development, manufacture or commercialization of Collaboration Compounds or Licensed Products hereunder.

Section 7.4 Compliance with Third Party Agreements.

(a) The grants by MERRIMACK under Licensed Intellectual Property set forth in Section 7.1 include the sublicense of certain Licensed Intellectual Property that is not owned by MERRIMACK. SANOFI-AVENTIS' rights and licenses under, or with respect to, Licensed Intellectual Property, including any prosecution or enforcement undertaken by the Parties pursuant to Article IX, are limited to the rights granted by Third Party licensors to MERRIMACK under the Existing Third Party Licenses and are subject to all applicable restrictions, limitations and obligations imposed on MERRIMACK or its sublicensees in such Existing Third Party Licenses. SANOFI-AVENTIS shall comply, and cause its Affiliates and sublicensees to

comply, with all such restrictions, limitations and obligations (including Paragraphs 4.2, 4.3, 5.1, 5.2, 8.1, 9.1-9.5, 10.1-10.5, 12.5, 13.7-13.9 and 14.10 of the PHS Agreement, a copy of which provisions is attached hereto as Exhibit E).

(b) During the Term, MERRIMACK shall use Commercially Reasonable Efforts to maintain the Existing Third Party Licenses in effect (and in particular shall use Commercially Reasonable Efforts not to commit any breach that would entitle the Third Party licensor to terminate an Existing Third Party License) and shall not terminate any Existing Third Party License without SANOFI-AVENTIS' prior written consent. In addition, during the Term, MERRIMACK shall promptly notify SANOFI-AVENTIS of any written notice of breach or termination received by MERRIMACK with respect to any Existing Third Party License and SANOFI-AVENTIS shall have the right to cure any such breach on MERRIMACK's behalf.

(c) Any sublicensee obligations required by any Existing Third Party License to be included in a sublicense thereunder, including without limitation any required provision making the applicable Third Party licensor a third party beneficiary of any sublicense thereunder, shall be deemed to be included in this Agreement, provided a copy of the relevant agreement has been provided to SANOFI-AVENTIS prior to the Execution Date.

(d) The license granted by MERRIMACK in Section 7.1 with respect to the Patent Rights licensed under the PHS Agreement are subject to rights reserved by the United States government as set forth in the PHS Agreement.

Section 7.5 Grant back of Licensed Intellectual Property. SANOFI-AVENTIS hereby grants to MERRIMACK a non-exclusive license, under Licensed Technology and Licensed Patent Rights, to the rights granted to SANOFI-AVENTIS under Section 7.1.(a), solely to the extent necessary for MERRIMACK to perform (i) the development obligations that may be assigned to it under the Global Development Plan and (ii) until and unless MERRIMACK opts out or terminates Co-Promotion with respect to any Co-Promotion Product, Co-Promotion activities pursuant to this Agreement.

Section 7.6 Trademark License. So long as MERRIMACK conducts Co-Promotion of Licensed Product(s), SANOFI-AVENTIS grants MERRIMACK a non-exclusive license to the trademark(s) utilized in marketing the Licensed Product(s) in the USA, to the extent necessary for MERRIMACK to conduct such Co-Promotion activities, such license to become effective on the date when MERRIMACK starts conducting Co-Promotion of Licensed Products and terminates automatically upon the date when MERRIMACK ceases, for whatever reason, to conduct Co-Promotion activities with respect to Licensed Products in the USA.

Section 7.7 No Implied Licenses. Except as explicitly set forth in this Agreement, neither Party grants to the other Party any license, express or implied, under its intellectual property rights.

Section 7.8 Section 365(n) of the Bankruptcy Code. All rights and licenses granted under or pursuant to any section of this Agreement are, and shall otherwise be deemed to be, for purposes of Section 365(n) of the Bankruptcy Code licenses of rights to "intellectual property" as defined under Section 101(35A) of the Bankruptcy Code. The Parties shall retain and may fully exercise all of their respective rights and elections under the Bankruptcy Code.

Article VIII
Financial Provisions

Section 8.1 Upfront Payment. SANOFI-AVENTIS shall pay MERRIMACK a one-time, non-refundable, non-creditable fee of Sixty Million Dollars (US$60,000,000) within seven (7) Business Days after the Effective Date, [**] Dollars (US$[**]) of which constitutes reimbursement for research and development costs previously incurred by MERRIMACK with respect to Collaboration Compounds and Licensed Products.

Section 8.2 Development and Regulatory Milestones.

(a) For each of the first and second distinct [**] indications, SANOFI-AVENTIS shall pay MERRIMACK up to a total of [**] Dollars (US$[**]) for achievement by Collaboration Compounds or Therapeutic Products of the following event milestones, resulting in a maximum potential payment of [**] Dollars (US$[**]) under this Section 8.2(a) if all of the following event milestones are achieved for the first two distinct [**] indications:

	Development and Regulatory Milestone Event for each of the First and Second Distinct [**] Indications		**Dollars [**]**
(i)	[**]	$	[**]
(ii)	[**]	$	[**]
(iii)	[**]	$	[**]
(iv)	[**]	$	[**]
(v)	[**]	$	[**]
(vi)	[**]	$	[**]
	For clarity: [**]	**$**	**[**]**
	For clarity: [**]	**$**	**[**]**

(b) For each of the third and fourth distinct [**] indications, SANOFI-AVENTIS shall pay MERRIMACK up to a total of [**] Dollars (US$[**]) for achievement by

Collaboration Compounds or Therapeutic Products of the following event milestones, resulting in a maximum potential payment of [**] Dollars (US$[**]) under this Section 8.2(b) if all of the following event milestones are achieved for both of the third and fourth distinct [**] indications:

	Development and Regulatory Milestone Event for each of the Third and Fourth Distinct [**] Indications	**Dollars [**]**
(i)	[**]	$ [**]
(ii)	[**]	$ [**]
(iii)	[**]	$ [**]
(iv)	[**]	$ [**]
(v)	[**]	$ [**]
(vi)	[**]	$ [**]
	For clarity: [**]	**$ [**]**
	For clarity: [**]	**$ [**]**

For clarity, "[**]" shall mean [**]. For example, [**] will be [**] of the [**] will be [**] of the [**] will be [**] within the [**], and so on. For clarity, (i) if a [**] in a [**] indication then [**] for such [**] indication [**] a new [**] indication for such [**] and (ii) a [**] in the same [**] indication (e.g. without limitation, [**] indication.

(c) As to each of the first, second, third and fourth [**] indications of Collaboration Compounds or Therapeutic Products, SANOFI-AVENTIS shall pay MERRIMACK [**] Dollars (US$[**]) upon the Successful Use (as defined below) of a Diagnostic Product in connection therewith, resulting in a maximum potential payment of [**] Dollars (US$[**]) under this Section 8.2(c) if Successful Use of a Diagnostic Product is achieved in all four indications. "Successful Use" of a Diagnostic Product means the use of a Diagnostic Product in a human clinical study in which the primary endpoint is achieved in a patient population that is stratified by the use of the Diagnostic Product, as determined in the protocol of the relevant study set forth in the Global Development Plan.

(d) Each milestone payment set forth in this Section 8.2 shall be payable by SANOFI-AVENTIS upon the achievement of the related milestone event by SANOFI-AVENTIS or any of its Affiliates or sublicensees, and SANOFI-AVENTIS shall provide notice to MERRIMACK promptly upon achievement of such milestone event and no later than within [**] days from such achievement. If any of the milestone events set forth in this Section 8.2 with respect to a PoC Phase II Study or Phase III Clinical Study is achieved by MERRIMACK or any of its Affiliates pursuant to the terms of this Agreement, the corresponding milestone payment(s) set forth in this Section 8.2 shall be payable by SANOFI-AVENTIS upon achievement of such milestone event by MERRIMACK or its Affiliates, and MERRIMACK shall provide notice to SANOFI-AVENTIS promptly upon achievement of such milestone event. Upon receipt of

SANOFI-AVENTIS' notice that a milestone event has been achieved, MERRIMACK shall prepare and provide SANOFI-AVENTIS with the corresponding invoice and SANOFI-AVENTIS shall pay MERRIMACK each such milestone payment within [**] days after receipt of such invoice.

(e) If any development event set forth in clause (i) or (ii) of either of the tables set forth in Section 8.2(a) or 8.2(b) above is not achieved due to SANOFI-AVENTIS or any of its Affiliates or sublicensees taking a development path that does not require the achievement of such development event (e.g., a PoC Phase II Study is not required for a given [**] indication), any milestone payment associated with such development event shall become payable when development has progressed beyond the point in development represented by such development event, it being understood that such progress shall be deemed to have been completed and the milestone set forth in clause (i) or (ii), as applicable, shall be deemed to have been achieved at the latest when development has reached the milestone set forth in clause (ii) or (iii), as applicable.

(f) If any event milestone payment set forth in either of the tables set forth in Section 8.2(a) or 8.2(b) above is paid by SANOFI-AVENTIS for a Therapeutic Product for a given [**] indication, and such Therapeutic Product is subsequently withdrawn from development for any reason, then such event milestone payment shall be creditable against the analogous event milestone payment that would be due upon the subsequent achievement of the same milestone event for the same [**] indication with another Therapeutic Product. For example, if (i) a PoC Phase II Study is initiated for a given Therapeutic Product for the first [**] indication, (ii) the $[**] event milestone payment is paid for such first [**] indication, (iii) the given Therapeutic Product for such [**] indication is withdrawn from development ("Failed Product"), and (iv) a PoC Phase II Study is subsequently initiated for another Therapeutic Product for the same [**] indication as the Failed Product, then no event milestone payment shall be due upon dosing of the first patient in such subsequent PoC Phase II Study for such other Therapeutic Product for the same [**] indication as the Failed Product. For clarity, if a payment set forth in Section 8.2(c) has been made by SANOFI-AVENTIS with respect to the Successful Use of a Diagnostic Product in connection with a particular [**] indication for a particular Collaboration Compound or Therapeutic Product and such Collaboration Compound or Therapeutic Product becomes a Failed Product, no payment will be due under Section 8.2(c) upon the Successful Use of the Diagnostic Product with another Collaboration Compound or Therapeutic Product for the same [**] indication.

(g) With respect to the regulatory events set forth in clauses (iv) and (vi) of the tables set forth in Sections 8.2(a) and 8.2(b) above, the Parties acknowledge that they anticipate that SANOFI-AVENTIS will be required to file an application for Marketing Authorization for Therapeutic Product(s) centrally with the EMEA. Notwithstanding the foregoing, in the event that SANOFI-AVENTIS files an application for Marketing Authorization for Therapeutic Product(s) with Regulatory Authorities of individual countries in the EU, or applicable Laws require such individual EU country filings, each of the regulatory events set forth in clauses (iv) and (vi) of the tables set forth in Sections 8.2(a) and 8.2(b) above shall be deemed to have been achieved upon the first filing for, or receipt of, Marketing Authorization, as applicable, in the first Major EU Country.

(h) For the avoidance of doubt, no event milestone payment shall be due with respect to any [**] indication beyond the fourth [**] indication to achieve any of the milestone events set forth in Sections 8.2(a), 8.2(b) and 8.2(c) above.

Section 8.3 Sales Milestones.

(a) As to each Therapeutic Product, SANOFI-AVENTIS shall pay MERRIMACK up to a total of Sixty Million Dollars (US$60,000,000) upon the first achievement of the following Net Sales milestones, on a Therapeutic Product-by-Therapeutic Product basis:

	Sales Milestone Event for Therapeutic Product		**Dollars [**]**
(i)	Total Worldwide Net Sales for such Therapeutic Product exceed $[**] in any four (4) consecutive calendar quarters	$	[**]
(ii)	Total Worldwide Net Sales for such Therapeutic Product exceed $[**] in any four (4) consecutive calendar quarters	$	[**]
(iii)	Total Worldwide Net Sales for Therapeutic Product exceed $[**] in any four (4) consecutive calendar quarters	$	[**]
	For clarity: TOTAL	**$**	**60.0M**

(b) Each milestone payment set forth in Section 8.4(a) shall be payable by SANOFI-AVENTIS upon the achievement of the related milestone event by SANOFI-AVENTIS and its Affiliates or sublicensees, and SANOFI-AVENTIS shall provide notice to MERRIMACK promptly upon achievement of such milestone event. SANOFI-AVENTIS shall pay MERRIMACK each such milestone payment within [**] days of such achievement of the related milestone event.

(c) For purposes of clarity, more than one of the Net Sales milestones set forth above may be earned in the same four (4) consecutive calendar quarter period with respect to a Therapeutic Product. For example, if total worldwide Net Sales with respect to a given Therapeutic Product have not achieved any of the lower sales milestone thresholds set forth in clause (i) or (ii) of Section 8.3(a) above in any previous four (4) consecutive calendar quarter period, but total worldwide Net Sales with respect to such Therapeutic Product exceed $[**] in a subsequent four (4) consecutive calendar quarter period, then all three milestone payments, totaling $60 Million, payable upon achievement of the sales milestone thresholds set forth in clause (i), (ii) and (iii) of Section 8.3(a) above shall become payable to MERRIMACK hereunder.

Section 8.4 Royalties.

(a) Royalty Rate for ROW Territory. As to each Therapeutic Product sold in the ROW Territory, subject to adjustment under Section 8.4(d) and to the remainder of this Section 8.4, SANOFI-AVENTIS shall pay MERRIMACK royalties on aggregate annual (calendar year) Net Sales of such Therapeutic Product in the ROW Territory, at the incremental royalty rates set forth below, on a Therapeutic Product-by-Therapeutic Product basis:

Aggregate Annual Net Sales (in US Dollars) for such Therapeutic Product in the ROW Territory	**Incremental Royalty Rates as a Percentage (%) of Net Sales**
Portion of Calendar Year Net Sales up to and including $[**]	[**]%
Portion of Calendar Year Net Sales that exceeds $[**], up to and including $[**]	[**]%
Portion of Calendar Year Net Sales that exceeds $[**], up to and including $[**]	[**]%
Portion of Calendar Year Net Sales that exceeds $[**]	[**]%

For example, if aggregate annual Net Sales of a given Therapeutic Product in the ROW Territory for a given calendar year are US$[**], then the royalty payable to MERRIMACK on such Net Sales of such Therapeutic Product in the ROW Territory under this Section 8.4(a) for that year would be US$[**], which is calculated as follows: [**].

(b) Royalty Rate for USA unless MERRIMACK Opts Out or Terminates Co-Promotion. As to each Therapeutic Product that is a Co-Promoted Product sold in the USA, subject to adjustment under Section 8.4(d) and to the remainder of this Section 8.4, SANOFI-AVENTIS shall pay MERRIMACK royalties on aggregate annual (calendar year) Net Sales of such Co-Promoted Product in the USA, at the incremental royalty rates set forth below, on a Therapeutic Product-by-Therapeutic Product basis, unless and until MERRIMACK opts out of Co-Promotion pursuant to Section 5.3, or terminates Co-Promotion pursuant to Section 5.6, with respect to any Co-Promoted Product in the USA (in which event Section 8.4(c) and the royalty rates set forth therein shall apply):

Aggregate Annual Net Sales (in US Dollars) for Co-Promoted Product(s) in the USA if MERRIMACK has not Opted Out or Terminated Co-Promotion	**Incremental Royalty Rate as a Percentage (%) of Net Sales**
Portion of Calendar Year Net Sales up to and including $[**]	[**]%

Aggregate Annual Net Sales (in US Dollars) for Co-Promoted Product(s) in the USA if MERRIMACK has not Opted Out or Terminated Co-Promotion	Incremental Royalty Rate as a Percentage (%) of Net Sales
Portion of Calendar Year Net Sales that exceeds $[**], up to and including $[**]	[**]%
Portion of Calendar Year Net Sales that exceeds $[**], up to and including $[**]	[**]%
Portion of Calendar Year Net Sales that exceeds $[**]	[**]%

(c) Royalty Rate for USA if MERRIMACK Opts Out or Terminates Co-Promotion. As to each Therapeutic Product sold in the USA, subject to adjustment under Section 8.4(d) and to the remainder of this Section 8.4, SANOFI-AVENTIS shall pay MERRIMACK royalties on aggregate annual (calendar year) Net Sales of a Therapeutic Product in the USA, at the incremental royalty rates set forth below, on a Therapeutic Product-by-Therapeutic Product basis, from and after MERRIMACK's opt-out of Co-Promotion with respect to any Therapeutic Product pursuant to Section 5.3, or MERRIMACK's termination of Co-Promotion with respect to any Therapeutic Product pursuant to Section 5.6:

Aggregate Annual Net Sales (in US Dollars) for each Therapeutic Product in the USA if MERRIMACK Opts Out or Terminates Co-Promotion	Incremental Royalty Rate as a Percentage (%) of Net Sales
Portion of Calendar Year Net Sales up to and including $[**]	[**]%
Portion of Calendar Year Net Sales that exceeds $[**], up to and including $[**]	[**]%
Portion of Calendar Year Net Sales that exceeds $[**], up to and including $[**]	[**]%
Portion of Calendar Year Net Sales that exceeds $[**]	[**]%

(d) Adjustment of Royalty Rate for Diagnostic Products.

(i) If, at any time during the Royalty Term for a Therapeutic Product, on a Therapeutic Product-by-Therapeutic Product and country-by-country basis, a Diagnostic Product is actually utilized in connection with the treatment of solid tumor indications with a particular Therapeutic Product (for clarity "actually utilized" means, for this purpose, that the number of

uses of the Diagnostic Product in such country during the applicable royalty period is greater than or equal to [**] percent ([**]%) of the number of patients first prescribed that particular Therapeutic Product during such royalty period), the applicable royalty rates for such Therapeutic Product set forth under Section 8.4(a), 8.4(b) or 8.4(c) above will be increased by [**]% of Net Sales of such Therapeutic Product during the applicable royalty period (i.e. if during any royalty period the Diagnostic Product is not actually utilized, the [**]% increase of the royalty rate shall not apply to Net Sales of the Therapeutic Product during that period).

(ii) SANOFI-AVENTIS shall be responsible for collecting and providing to MERRIMACK, with each quarterly royalty report, such information and data as are reasonably necessary to determine whether actual utilization (as described in Section 8.4(d)(i) above) has occurred, and for including in any licenses of rights to, and distribution agreements for, Diagnostic Products such requirements as are necessary to ensure that such information and data can be collected by SANOFI-AVENTIS from sublicensees and distributors.

(iii) For example, if aggregate annual Net Sales of a Therapeutic Product that is a Co-Promoted Product in the USA is $[**] for calendar year 2014, and a Diagnostic Product is actually utilized (as described in Section 8.4(d)(i)) with respect to such Therapeutic Product during a calendar quarter in such calendar year, then the royalty rate applicable to Net Sales of the Co-Promoted Product achieved during such calendar quarter shall be [**].

(iv) If both the adjustment under this Section 8.4(d) and any reduction pursuant to the remainder of Section 8.4 apply, then the adjustment set forth in this Section 8.4(d) shall be applied before any reduction set forth in the remainder of Section 8.4 is applied.

(e) Royalty Term; Co-Promote Term.

(i) The applicable royalties payable to MERRIMACK under Sections 8.4(a), 8.4(b) and 8.4(c) (as the royalty rates applicable under each of the foregoing may be adjusted by Section 8.4(d) and/or reduced by Sections 8.4(f) and 8.4(g)) above shall be paid by SANOFI-AVENTIS on each Therapeutic Product, on a Therapeutic Product-by-Therapeutic Product and a country-by-country basis, until the latest of (A) the time at which no Valid Claim exists as to such Therapeutic Product in such country, (B) the expiration of all data and regulatory exclusivity applicable to such Therapeutic Product pursuant to statute or regulation in such country, or (C) ten (10) years after the First Commercial Sale of such Therapeutic Product in such country (the "Royalty Term").

(ii) Notwithstanding the preceding Section 8.4(e)(i), if, upon expiration of the Royalty Term for a Co-Promoted Product in the USA, (x) MERRIMACK is Co-Promoting Co-Promoted Product(s), and (y) [**]% Market Erosion (as defined in Section 8.4(g)(i)) attributable to Generic Products in the USA has not occurred, then:

(A) The applicable royalties payable to MERRIMACK under Section 8.4(b) (as the royalty rates applicable thereunder may be adjusted by Section 8.4(d) and as reduced by Section 8.4(f) (for clarity, it being acknowledged by the Parties that the [**]%

reduction provided for in Section 8.4(f) will apply)) above shall continue to be paid by SANOFI-AVENTIS on such Co-Promoted Product in the USA thereafter from such expiration of the Royalty Term for such Co-Promoted Product, on a Co-Promoted Product-by-Co-Promoted Product basis, until such time as (x) such Co-Promoted Product is permanently discontinued or no longer sold in the USA, (y) MERRIMACK terminates Co-Promotion pursuant to Section 5.6, or (z) [**]% Market Erosion attributable to Generic Products in the USA has occurred with respect to such Co-Promoted Product (collectively with the Royalty Term, as to Therapeutic Products in the USA, the "Co-Promote Royalty Term") (for clarity, it being acknowledged by the Parties that upon the expiration of the Co-Promote Royalty Term for such Co-Promoted Product no further royalties shall be payable in respect of Net Sales of such Co-Promoted Product in the USA, although clause (B) below shall be applicable in the circumstances specified therein); and

(B) If the Co-Promote Royalty Term expires with respect to a Co-Promoted Product as a result of the occurrence of a [**]% Market Erosion attributable to Generic Product(s) in the USA, but (x) MERRIMACK is Co-Promoting Co-Promoted Product(s) at such time and (y) MERRIMACK has not terminated Co-Promotion pursuant to Section 5.6, then [**] percent ([**]%) of MERRIMACK's [**]% share of Marketing Costs and [**] percent ([**]%) of MERRIMACK's Sales Force Costs (all the foregoing costs to the extent they are solely incurred with respect to the Co-Promoted Product as to which [**]% Market Erosion occurs, it being understood that if at such time MERRIMACK is Co-Promoting other Co-Promoted Products which do not experience [**]% Market Erosion, this Section 8.4(e)(ii)(B) shall not apply to such other Co-Promoted Products) shall be reimbursed by SANOFI-AVENTIS after such expiration of the Co-Promote Royalty Term until such Co-Promoted Product is permanently discontinued or no longer sold in the USA or MERRIMACK terminates Co-Promoting pursuant to Section 5.6 (collectively with the Co-Promote Royalty Term, the "Co-Promote Term"); provided that, such costs are incurred in accordance with the applicable Commercialization Plan for the USA that has been approved by the JCC (including the budget included therein). For clarity, Section 8.6(b) shall apply to such costs.

(iii) If MERRIMACK terminates Co-Promotion of any Therapeutic Product pursuant to Section 5.6 resulting in the termination of Co-Promotion in the USA, but the Royalty Term (as set forth in Section 8.4(e)(i)) for such Therapeutic Product remains in effect at the time of such termination, then applicable royalties shall be payable to MERRIMACK under Section 8.4(c) (as the royalty rates applicable thereunder may be adjusted by Section 8.4(d) and/or reduced by Sections 8.4(f) and 8.4(g)) for such Therapeutic Product, on a Therapeutic Product-by-Therapeutic Product basis, for the remainder of such Royalty Term.

(f) Reduction for Lack of Patent Coverage and Regulatory Exclusivity. Notwithstanding anything in Section 8.4(a), 8.4(b) or 8.4(c) to the contrary, if no Valid Claim exists as to a Therapeutic Product in a country and no data or regulatory exclusivity is applicable to such Therapeutic Product pursuant to statute or regulation in such country, the royalty rate for such Therapeutic Product in such country shall be reduced to [**] percent ([**]%) of the applicable royalty rate set forth in Section 8.4(a), 8.4(b) or 8.4(c).

(g) Reduction for Generic Competition.

(i) If one or more Generic Products exist with respect to a Therapeutic Product and such Generic Product(s) is(are) marketed and sold in a given country by one or more Third Parties during any calendar quarter during the Royalty Term or the Co-Promote Royalty Term, as applicable, and Net Sales of such Therapeutic Product during such calendar quarter have decreased by [**] percent ([**]%) or more, but less than [**] percent ([**]%) ("[**]% Market Erosion"), relative to Net Sales of such Therapeutic Product in such country during the calendar quarter immediately prior to the calendar quarter during which such Generic Product(s) is(are) first marketed and sold in such country (as such, the "Baseline Net Sales"), then the royalty rate for such Therapeutic Product in such country, on a Therapeutic Product-by-Therapeutic Product and country-by-country basis, shall be reduced to [**] percent ([**]%) of the applicable royalty rate set forth in Section 8.4(a), 8.4(b) 8.4(c) or 8.4(f).

(ii) If one or more Generic Products exists with respect to a Therapeutic Product and such Generic Product(s) is(are) marketed and sold in a given country by one or more Third Parties during any calendar quarter during the Royalty Term or Co-Promote Royalty Term, as applicable, and Net Sales of such Therapeutic Product during such calendar quarter have decreased by fifty percent ([**]%) or more ("[**]% Market Erosion") relative to the Baseline Net Sales of such Therapeutic Product, then the royalty rate for such Therapeutic Product in such country, on a Therapeutic Product-by-Therapeutic Product and country-by-country basis, shall be reduced to [**] percent ([**]%).

(iii) For purposes of clarity, if Generic Product(s) with respect to a Therapeutic Product are no longer marketed and sold in a given country, or Net Sales of the Therapeutic Product in a given country for any calendar quarter reaches a level that is greater than [**] percent ([**]%) of the Baseline Net Sales, then any reduction in royalty rate under this Section 8.4(g) shall no longer apply as long as Net Sales of that Therapeutic Product reach a level greater than [**] percent ([**]%) of the Baseline Net Sales.

(h) Third Party Licenses.

(i) Subject to Sections 8.4(h)(ii) and 8.4(h)(iii), (x) SANOFI-AVENTIS shall reimburse MERRIMACK for the [**], that become payable after the Effective Date, of all Existing Third Party Licenses and (y) SANOFI-AVENTIS shall be responsible for the [**], of all Third Party licenses (for clarity excluding licenses for Listed Third Party Patents) entered into by SANOFI-AVENTIS with Third Parties after the Effective Date that are necessary so as not to infringe any Third Party Patent Rights in the manufacture, use, offer for sale, sale or importation of Collaboration Compounds or Licensed Products hereunder (each such arrangement, other than with respect to any Listed Third Party Patent, a "Third Party License", and the [**], of all such Third Party Licenses as set forth in clauses (x) and (y), excluding costs related to licenses for Listed Third Party Patents, "Third Party License Costs"). The Parties agree that SANOFI-AVENTIS shall take the lead in negotiating and entering into any Third Party Licenses after the Effective Date, provided that [**] percent ([**]%) of the Third Party License Costs directly paid by SANOFI-AVENTIS to the applicable licensors shall be subject to deduction by SANOFI-AVENTIS pursuant to Section 8.4(h)(iii).

(ii) Notwithstanding the foregoing, as between the Parties, MERRIMACK shall take the lead in negotiating and entering into appropriate licensing

arrangements for the Listed Third Party Patents, and shall be solely responsible for [**]. MERRIMACK shall keep SANOFI-AVENTIS reasonably informed of the status of such negotiations. If MERRIMACK determines that, despite MERRIMACK's good faith efforts, MERRIMACK is or will likely be unable to successfully negotiate and enter into appropriate licensing arrangements for any Listed Third Party Patent(s), or MERRIMACK otherwise determines to terminate efforts to negotiate licensing arrangements for any Listed Third Party Patent(s), MERRIMACK shall notify SANOFI-AVENTIS thereof and SANOFI-AVENTIS shall have the right to assume responsibility for negotiating and entering into appropriate licensing arrangements for such Listed Third Party Patent(s), in which event SANOFI-AVENTIS shall use comparable Commercially Reasonable Efforts to negotiate and enter into such licensing arrangements on the most favorable financial terms possible [**] resulting from such licensing arrangements, provided however that [**] (so that all such costs are ultimately borne by [**] as if [**] has entered itself into such licensing arrangements for such Listed Third Party Patent(s)).

(iii) SANOFI-AVENTIS may deduct from any royalties that are subsequently due to MERRIMACK under this Agreement, on a Therapeutic Product-by-Therapeutic Product and country-by-country basis, up to [**] percent ([**]%) of any Third Party License Costs actually paid by SANOFI-AVENTIS pursuant to Section 8.4(h)(i) above, either as a reimbursement to MERRIMACK with respect to Existing Third Party Licenses or directly to SANOFI-AVENTIS's Third Party licensor(s), as the case may be.

(i) Limitation on Aggregate Deduction.

(i) Notwithstanding anything in this Agreement to the contrary, except as otherwise set forth in clause (ii) below, and subject to clause (iii) below, in no event shall the amount of any royalties payable to MERRIMACK pursuant to Section 8.4(a), 8.4(b), 8.4(c) or 8.4(f) (as the royalty rates applicable under each of the foregoing sections may be adjusted by Section 8.4(d)), as applicable, with respect to any Therapeutic Product in any country, on a Therapeutic Product-by-Therapeutic Product and country-by-country basis, for a given calendar quarter, be reduced to less than [**] percent ([**]%) of the amounts specified in Section 8.4(a), 8.4(b) , 8.4(c) or 8.4(f) (as the royalty rates applicable under each of the foregoing sections may be adjusted by Section 8.4(d)), as applicable, for the applicable calendar quarter, as a result of all reductions made under this Section 8.4 (it being understood that, as set forth in Section 8.4(i)(iii) below, no such limitation on aggregate reductions shall apply with respect to costs related to licensing arrangements for Listed Third Party Patents, which will be [**] directly to the applicable licensor if [**] has entered into a license with respect to the applicable Listed Third Party Patents (and definitively borne by [**]), or entirely invoiced by [**] to [**] has entered into a license with respect to the applicable Listed Third Party Patents).

(ii) If the reduction set forth in Section 8.4(g)(ii) as a result of a [**]% Market Erosion is one of the reductions that applies under this Section 8.4, the royalties with respect to any Therapeutic Product in any country, on a Therapeutic Product-by-Therapeutic Product and country-by-country basis, for a given calendar quarter, may be reduced to [**] percent ([**]%).

(iii) For clarity, costs related to licensing arrangements with respect to Listed Third Party Patents shall not be taken into consideration in calculating the limitation on aggregate deduction set forth in Section 8.4(i) and shall be borne as set forth in Section 8.4(h)(ii).

(j) Royalties Payable Only Once. The obligation to pay royalties is imposed only once with respect to the same unit of a Licensed Product.

(k) Royalty Reports and Payments. SANOFI-AVENTIS shall deliver to MERRIMACK, within [**] days after the end of each calendar quarter, reasonably detailed written accountings of sales of Diagnostic Products, Net Sales of Therapeutic Products, information and data with respect to actual utilization of Diagnostic Products which SANOFI-AVENTIS is obligated to provide MERRIMACK under Section 8.4(d)(ii), and royalties and sales milestone payments, if any, due to MERRIMACK, for such calendar quarter. Such quarterly reports shall indicate gross sales on a country-by-country and product-by-product basis, the deductions from gross sales used in calculating Net Sales and the resulting calculation of royalties and sales milestone payments. When SANOFI-AVENTIS delivers such accountings to MERRIMACK, SANOFI-AVENTIS shall also deliver all royalty payments due hereunder to MERRIMACK for the calendar quarter.

Section 8.5 Reconciliation of Marketing Costs. So long as MERRIMACK is Co-Promoting any Co-Promoted Product hereunder, within [**] days after the end of each calendar quarter during the applicable Co-Promote Term, each Party shall submit to the other Party a report setting forth the Marketing Costs (and in addition, as to MERRIMACK, MERRIMACK's Sales Force Costs if applicable pursuant to Section 8.4(e)(ii)(B)) it incurred in such calendar quarter with respect to Co-Promoted Product(s). Each report shall specify in reasonable detail all internal personnel costs at the FTE Rate, out-of-pocket costs and expenses, and other components relevant to the calculation of Marketing Costs. Within [**] days after receipt of such reports, the Parties shall confer and agree on whether a reconciliation payment is due from one Party to the other, and if so, the amount of such reconciliation payment, so that the Parties share Marketing Costs in accordance with Section 5.4(a)(vii). The Party required to pay such reconciliation payment shall submit such payment to the other Party within [**] days after the end of such [**] day period.

Section 8.6 Recordkeeping; Audit Rights.

(a) Audits by MERRIMACK. SANOFI-AVENTIS shall keep, and shall require its Affiliates and sublicensees to keep, complete and accurate records of the latest [**] years of sales of Diagnostic Products, information and data with respect to actual utilization of Diagnostic Products which SANOFI-AVENTIS is obligated to provide MERRIMACK under Section 8.4(d)(ii), Net Sales of Therapeutic Products to which royalties or sales milestones attach hereunder, and, unless and until MERRIMACK opts out of or terminates Co-Promotion with respect to any Co-Promoted Product hereunder, its Marketing Costs for Co-Promoted Product(s). For the sole purpose of verifying amounts payable to or by MERRIMACK hereunder, MERRIMACK shall have the right [**] at MERRIMACK's expense to retain an independent certified public accountant selected by MERRIMACK and reasonably acceptable to SANOFI-AVENTIS, to review such records in the location(s) where such records are maintained by SANOFI-AVENTIS, its Affiliates or its sublicensees upon reasonable notice and during regular

business hours and under obligations of confidence. Results of such review shall be made available to both MERRIMACK and SANOFI-AVENTIS. If the review reflects an underpayment of any amounts payable to MERRIMACK, such underpayment shall be remitted to MERRIMACK, within [**] days after the notification of the results by MERRIMACK to SANOFI-AVENTIS, together with interest calculated in the manner provided in Section 8.9. If the

underpayment is equal to or greater than [**] percent ([**]%) of the amount that was otherwise due, SANOFI-AVENTIS shall pay all of the reasonable out of pocket expenses of such review. If the review reflects an overpayment of any amounts to MERRIMACK, the amount of such overpayment shall be refunded to SANOFI-AVENTIS within [**] days of such review.

(b) Audits by SANOFI-AVENTIS. MERRIMACK shall keep, and shall require its Affiliates and sublicensees to keep, complete and accurate records of the latest [**] years of any Manufacturing Costs incurred in the conduct of manufacturing activities hereunder, internal costs of MERRIMACK personnel at the FTE Rate and out-of-pocket costs and expenses incurred by MERRIMACK in the conduct of research, development and regulatory activities under the Global Development Plan, and, unless and until MERRIMACK opts out of or terminates Co-Promotion with respect to any Co-Promoted Product hereunder, its Marketing Costs for Co-Promoted Product(s). For the sole purpose of verifying amounts payable to or by SANOFI-AVENTIS hereunder, SANOFI-AVENTIS shall have the right [**] at SANOFI-AVENTIS's expense to retain an independent certified public accountant selected by SANOFI-AVENTIS and reasonably acceptable to MERRIMACK, to review such records in the location(s) where such records are maintained by MERRIMACK, its Affiliates or its sublicensees upon reasonable notice and during regular business hours and under obligations of confidence. Results of such review shall be made available to both MERRIMACK and SANOFI-AVENTIS. If the review reflects an underpayment of any amounts payable to SANOFI-AVENTIS, such underpayment shall be remitted to SANOFI-AVENTIS, within [**] days after notification of the results by SANOFI-AVENTIS to MERRIMACK, together with interest calculated in the manner provided in Section 8.9. If the underpayment is equal to or greater than [**] percent ([**]%) of the amount that was otherwise due, MERRIMACK shall pay all of the reasonable out of pocket expenses of such review. If the review reflects an overpayment of any amounts to SANOFI-AVENTIS, the amount of such overpayment shall be refunded to MERRIMACK within [**] days after such review.

Section 8.7 Method of Payment. All amounts payable by a Party hereunder shall be paid by or on behalf of such paying Party in U.S. Dollars. With respect to sales of Therapeutic Products invoiced in United States Dollars, the royalties payable to MERRIMACK shall be expressed in United States Dollars. With respect to sales of Therapeutic Products invoiced in a currency other than United States Dollars, the royalties payable shall be expressed in their United States Dollar equivalent, calculated using the applicable conversion rates for buying United States dollars published by The Wall Street Journal (Eastern Edition) on the last Business Day of the calendar quarter to which the royalty report relates. All payments due to a Party hereunder shall be made by wire transfer directly to an account designated by such Party.

Section 8.8 Invoices. Unless otherwise expressly stated in this Agreement, MERRIMACK shall invoice SANOFI-AVENTIS, on a [**] basis with respect to clinical

development costs and expenses and on a [**] basis with respect to other costs and expenses, for costs or expenses that become due and payable to MERRIMACK hereunder, including Manufacturing Costs, internal costs of MERRIMACK personnel at the FTE Rate and out-of-pocket costs and expenses incurred by MERRIMACK in the conduct of MERRIMACK's activities under this Agreement, Third Party License Costs and patent prosecution costs, and SANOFI-AVENTIS shall pay MERRIMACK such invoiced amount within [**] days following receipt thereof. The foregoing shall apply reciprocally with respect to any costs invoiced by SANOFI-AVENTIS to MERRIMACK.

Section 8.9 Late Payments. Any payment under this Agreement that is not paid on or before the date such payment is due shall bear interest at the lesser of (a) [**] percentage points above the prime rate of interest of Citibank, N.A. as announced on the date such payment is due, or (b) the highest rate permitted by applicable Laws, calculated on the number of days such payments are overdue and compounded monthly. In addition, the Party responsible for paying shall reimburse the payee Party for all costs and expenses, including without limitation attorneys' fees and legal expenses, incurred in the collection of late payments, provided, that the foregoing shall not apply with respect to payments disputed in good faith by the paying Party unless the payee Party is successful in such dispute or the paying Party ceases to dispute such payments.

Section 8.10 Tax Withholding.

(a) All payments required under this Agreement shall be without any deduction or withholding for, or on account of, any tax or similar governmental charge imposed by any jurisdiction, unless such deduction or withholding is required by applicable laws or regulations. If the Party making a payment (for purposes of this Section 8.10, the "Paying Party") is so required to deduct or withhold, such Party will (i) promptly notify the other Party of such requirement, (ii) pay to the relevant authorities the full amount required to be deducted or withheld and (iii) promptly forward to the other Party an official report (or certified copy thereof) or other documentation reasonably acceptable to the other Party evidencing such payment to such authorities.

(b) The Parties shall reasonably cooperate in completing and filing documents required under the provisions of any applicable tax laws or under any other applicable law in connection with the making of any required tax payment or withholding payment, or in connection with any claim to a refund of or credit for any such payment.

(c) Prior to any payment by one Party to the other in a calendar year, the Party receiving the payment (for purposes of this Section 8.10, the "Receiving Party") shall provide the Paying Party with any relevant form required by the relevant tax authorities in order for the Receiving Party to attest its fiscal residence and accordingly obtain the application of the reduced withholding tax rate or the exemption from withholding tax, according to the relevant bilateral convention for the prevention of double taxation. At the request of the Receiving Party, the Paying Party will forward to the Receiving Party the applicable forms for completion. In the event the Receiving Party fails to return to the Paying Party such forms duly completed and signed before a payment date, the Paying Party will declare and pay withholding tax at the local common law rate applicable to the payments, and such tax will be deducted from the corresponding payment by the Paying Party to the Receiving Party. The Paying Party will remit

the withholding tax to the proper tax authority and proof of payment of such tax shall be secured and sent to the Receiving Party as evidence of such payment.

Section 8.11 Blocked Payments. In the event that, by reason of applicable Laws in any country, it becomes impossible or illegal for SANOFI-AVENTIS or its Affiliates or sublicensees, to transfer, or have transferred on its behalf, royalties or other payments to MERRIMACK, such royalties or other payments shall be deposited in local currency in the relevant country to the credit of MERRIMACK in a recognized banking institution designated by MERRIMACK or, if none is designated by MERRIMACK within a period of thirty (30) days, in a recognized banking institution selected by SANOFI-

AVENTIS or its Affiliates or sublicensees, as the case may be, and identified in a notice in writing given to MERRIMACK. The foregoing shall apply reciprocally to any payment that would be due by MERRIMACK to SANOFI-AVENTIS hereunder.

Article IX

Intellectual Property Ownership, Protection and Related Matters

Section 9.1 Ownership of Inventions.

(a) Solely-Owned Inventions. Each Party shall exclusively own all right, title and interest in and to all inventions made or conceived solely by the employees, agents, consultants or contractors of such Party or its Affiliates in the course of performing its activities under this Agreement and without relying on any Confidential Information received from the other Party.

(b) Joint Inventions. All inventions made or conceived jointly by employees, agents and consultants of MERRIMACK or its Affiliates, and employees, agents, consultants or contractors of SANOFI-AVENTIS or its Affiliates, shall be owned jointly on the basis of each Party having an undivided interest in the whole ("Joint Inventions"). Each Party covenants that it will not subject any such Joint Technology or Joint Patent Rights to any lien, encumbrance, security interest and/or other imposition that would affect the other Party's title or right to use the Joint Technology or Joint Patent Rights or to sell or otherwise assign its rights thereunder without consent of the other Party, except as otherwise provided by the terms of this Agreement. Subject to the licenses granted herein and each Party's payment obligations hereunder, each Party shall have the right to exploit such Joint Inventions without any duty to account to the other Party, provided that during the Term of this Agreement (i) MERRIMACK shall not be entitled to use (except as provided under this Agreement) or grant any rights to any Third Party for Joint Inventions in the Field in relation to Collaboration Compounds and Licensed Products for as long as they are subject, on a country-by-country basis, to the license granted by MERRIMACK to SANOFI-AVENTIS in Section 7.1 hereof, and (ii) neither Party shall use or grant rights to any Third Party for Joint Inventions in the Field in relation to any Competing Product.

(c) Inventorship. For purposes of determining the Parties' rights under this Agreement, the determination of inventorship shall be made in accordance with United States patent laws. In the event of any dispute regarding inventorship, if the Parties are unable to resolve the dispute, the Parties shall jointly engage mutually acceptable independent U.S. patent

counsel not regularly employed by either Party (or, if the Parties are unable to mutually agree on such patent counsel, the Washington, D.C. office of the AAA shall appoint such patent counsel) to resolve such dispute. The decision of such independent patent counsel shall be binding on the Parties with respect to the issue of inventorship.

Section 9.2 Prosecution and Maintenance of Patent Rights.

(a) Licensed Patent Rights Solely Controlled by Merrimack. Subject to any rights of and obligations to MERRIMACK's Third Party licensors with respect to Licensed Patent Rights not owned by MERRIMACK, (i) MERRIMACK shall use Commercially Reasonable Efforts to prepare, file and prosecute any patent applications and to maintain any patents within the Licensed Patent Rights (other than any Joint Patent Right), in MERRIMACK's name, and to control any interference, opposition and similar proceedings relating thereto, in the patent jurisdictions listed in Exhibit G, at MERRIMACK's expense (in particular MERRIMACK shall use best efforts not to miss any official nonextendable deadlines with respect to prosecution, and shall pay all applicable fees on or before the due date for payment to avoid that Licensed Patent Rights (other than Joint Patent Rights) lapse for absence of or delay in payment) and (ii) if requested by SANOFI-AVENTIS, MERRIMACK shall use Commercially Reasonable Efforts to prepare, file and prosecute any patent applications and to maintain any patents within the Licensed Patent Rights (other than Joint Patent Rights), in MERRIMACK's name, and to control any interference, opposition and similar proceedings relating thereto, in additional patent jurisdictions requested by SANOFI-AVENTIS that are not listed in Exhibit G, at SANOFI-AVENTIS' expense (it being agreed that MERRIMACK shall use best efforts not to miss any official nonextendable deadlines with respect to prosecution, and shall pay all applicable fees on or before the due date for payment to avoid that Licensed Patent Rights (other than Joint Patent Rights) lapse for absence of or delay in payment). Subject to any rights of and obligations to MERRIMACK's Third Party licensors with respect to Licensed Patent Rights not owned by MERRIMACK, MERRIMACK shall (x) inform and consult with SANOFI-AVENTIS regarding the preparation, filing, prosecution, defense and maintenance of all such patents, and shall give due consideration to any SANOFI-AVENTIS suggestions or recommendations and (y) to the extent permitted by applicable Laws, apply for any patent term extension or supplementary protection certificate for a Therapeutic Product or Diagnostic Product requested by SANOFI-AVENTIS.

(b) SANOFI-AVENTIS Patent Rights Solely Controlled by SANOFI-AVENTIS. SANOFI-AVENTIS shall have the exclusive right and option (but not the obligation), at its sole cost and expense, to prepare, file and prosecute any patent applications and to maintain any patents within SANOFI-AVENTIS Patent Rights (other than Joint Patent Rights) in SANOFI-AVENTIS's name, and to control any interference, opposition and similar proceedings relating thereto.

(c) Joint Patent Rights. SANOFI-AVENTIS, shall have the first right and option (but not the obligation) to file and prosecute any patent applications and to maintain any patents within the Joint Patent Rights in both Parties' names, and to control any interference, opposition and similar proceedings relating thereto. In the event that SANOFI-AVENTIS elects not to file, prosecute, or maintain, or elects to abandon any Joint Patent Right, or declines to control any related interference, opposition or similar proceedings, SANOFI-AVENTIS shall

give MERRIMACK reasonable written notice to this effect, sufficiently in advance to permit MERRIMACK, in its sole discretion and expense, to undertake such filing, prosecution and maintenance, or to control such interference, opposition or similar proceedings, without a loss of rights, and thereafter MERRIMACK may, upon written notice to SANOFI-AVENTIS and jointly in both Parties' names, file, prosecute and maintain such Joint Patent Rights and control such interference, opposition or similar proceedings. If required under applicable Law in order for the prosecuting Party to control any interference, opposition and similar proceedings relating to the Patent Prosecution of any Joint Patent Rights, the other Party shall join as a party to such interference, opposition or similar proceeding.

(d) Costs and Expenses. As from the Effective Date (and except for costs that SANOFI-AVENTIS has expressly and specifically agreed, in a separate document, to bear or reimburse), the Parties shall bear the costs of preparing, filing, prosecuting, and maintaining Patent Rights other than Joint Patent Rights in accordance with Sections 9.2(a) and 9.2(b) and each Party shall bear its own costs and expenses in preparing, filing, prosecuting, and maintaining Joint Patent Rights in accordance with Section 9.2(c).

(e) Cooperation. Each Party agrees to cooperate with the other with respect to the preparation, filing, prosecution and maintenance of patents and patent applications pursuant to this Section 9.2 ("Patent Prosecution"), subject to any rights of, and obligations to, MERRIMACK's Third Party licensors:

(i) the execution of all such documents and instruments and the performance of such acts as may be reasonably necessary in order to permit the other Party to continue any Patent Prosecution that such Party has elected not to pursue, as provided for in Section 9.2(c);

(ii) making its employees, agents and consultants reasonably available to the other Party (or to the other Party's authorized attorneys, agents or representatives), to the extent reasonably necessary to enable the prosecuting Party to undertake Patent Prosecution;

(iii) to provide (itself or through patent counsel) the other Party a copy of each proposed material correspondence pertaining to substantive Patent Prosecution on the merits with the United States Patent and Trademark Office ("USPTO"), the World Intellectual Property Office ("WIPO") or the European Patent Office ("EPO"), as well as providing draft copies of patent applications to be submitted to the USPTO or to the WIPO under the Patent Cooperation Treaty, or submitted to any patent office in the Territory in a form substantially different from that previously submitted to the USPTO or to the WIPO, reasonably in advance of any applicable filing or response deadline to allow the other Party to review and comment on the content of such proposed correspondence and advise the prosecuting Party as to the conduct of such Patent Prosecution, which comments and advice the prosecuting Party will not unreasonably decline to follow, provided that doing so is consistent with the goal of obtaining optimal patent coverage for Licensed Products;

(iv) to provide (itself or through patent counsel) the other Party with copies of all material correspondence pertaining to substantive Patent Prosecution on the merits with the USPTO, the WIPO or the EPO after its submission or receipt, as the case may be; and

(v) to seek patent term extensions, adjustments, and the like wherever available for the Licensed Patent Rights.

Section 9.3 Third Party Infringement.

(a) Notice. Each Party shall promptly report in writing to the other Party during the Term any (i) known or suspected infringement of any issued claims within the Licensed Patent Rights, or (ii) misappropriation of any of the Licensed Technology of which such Party becomes aware. In the event such known or suspected infringement or misappropriation involves the manufacture, use or commercialization of a product or product candidate that is or may be competitive with a Collaboration Compound or Licensed Product being developed or commercialized by SANOFI-AVENTIS hereunder ("Competitive Infringement"), the reporting Party shall provide the other Party with all available evidence supporting such infringement, suspected infringement, misappropriation or suspected misappropriation. Promptly after receipt of a notice of a Competitive Infringement, the Parties shall discuss in good faith the infringement and appropriate actions that could be taken to cause such infringement of Licensed Patent Rights or use of misappropriated Licensed Technology to cease.

(b) Enforcement. Subject to any rights of and obligations to MERRIMACK's Third Party licensors, SANOFI-AVENTIS shall have the first right to initiate a suit or take other appropriate action that it believes is reasonably required to protect (*i.e.*, prevent or abate actual or threatened misappropriation or infringement of, or otherwise enforce, in the best commercial interests of Licensed Products) the Licensed Intellectual Property (including Joint Patent Rights and Joint Technology) against any Competitive Infringement, at SANOFI-AVENTIS' sole control and expense. If SANOFI-AVENTIS fails to initiate a suit or take other appropriate action that it has the initial right to initiate or take to protect the Licensed Intellectual Property against any Competitive Infringement within [**] days (or such shorter period specified below in this Section 9.3(b) or in Section 9.6, if applicable) after becoming aware of the basis for such suit or action, then MERRIMACK may, in its discretion, initiate a suit or take other appropriate action that it believes is reasonably required to protect the Licensed Intellectual Property at issue. The [**] day period in the immediately preceding sentence shall be shortened as reasonably necessary to enable MERRIMACK to initiate a suit or take other appropriate action if, in the absence of such shortening, a loss of rights with respect to such suit or other action would occur (e.g., if a generic pharmaceutical maker files an abbreviated new drug application or analogous application for which the reference listed drug is a Licensed Product and, in order to obtain an automatic stay from the FDA with respect to the approval of such application, a patent infringement suit must be brought within a shorter period of time). The Party filing any such suit or taking any such action shall be responsible for all costs in connection therewith and, therefore, shall control all decision-making related to any such suit or action, subject to Section 9.3(c) below.

(c) Conduct of Actions. The Party initiating suit or action shall have the sole and exclusive right to select counsel for any suit initiated by it referred to in Section 9.3(b) above. If required under applicable Law in order for the initiating Party to initiate or maintain such suit or action, the other Party shall join as a party to the suit or action. Such other Party shall offer reasonable assistance to the initiating Party in connection therewith at no charge to the

initiating Party except for reimbursement of reasonable out-of-pocket expenses incurred in rendering such assistance. The Party filing any such suit or taking any such action shall provide the other Party with an opportunity to make suggestions and comments regarding such suit or action. Thereafter, the Party filing any such suit or taking any such action shall, to the extent permitted by applicable Law, keep the other Party promptly informed, and shall from time to time consult with such other Party regarding the status of any such suit or action and shall provide such other Party with copies of all material documents (i.e., complaints, answers, counterclaims, material motions, orders of the court, memoranda of law and legal briefs, interrogatory responses, depositions, material pre-trial filings, expert reports, affidavits filed in court, transcripts of hearings and trial testimony, trial exhibits and notices of appeal) filed in, or otherwise relating to, such suit or action. The Party not initiating such suit or action shall cooperate with the Party initiating such suit or action to the extent reasonably requested, and shall have the right to participate and be represented in any such suit by its own counsel at its own expense. Neither Party shall conduct any such suit or action in a manner that materially places at risk the scope or validity of any Licensed Patent Right without the prior written approval of the other Party, and neither Party shall settle or compromise any claim or proceeding relating to Licensed Intellectual Property without obtaining the prior written consent of the other Party, such consent not to be unreasonably withheld.

(d) Recoveries. With respect to any suit or action to protect Licensed Intellectual Property referred to in Section 9.3(b) above, any recovery obtained as a result of any such proceeding, by settlement or otherwise, shall be applied in the following order of priority:

(i) first, the Party initiating the suit or action with respect to Licensed Intellectual Property shall be reimbursed for all costs and expenses in connection with such proceeding paid by such Party and not otherwise recovered; and

(ii) second, any remainder shall be paid [**] percent ([**]%) to the Party initiating such suit or action and [**] percent ([**]%) to the other Party.

Section 9.4 Claimed Infringement. In the event that a Party becomes aware of any claim or threat of claim that the research, development, manufacture or commercialization of any Collaboration Compound or Licensed Product by MERRIMACK or SANOFI-AVENTIS hereunder infringes or misappropriates the intellectual property rights of any Third Party, such Party shall promptly notify the other Party. Each Party shall provide to the other Party copies of any notices it receives from Third Parties regarding any patent nullity actions, any declaratory judgment actions, any alleged infringement of Third Party Patent Rights or any alleged misappropriation of Third Party Know-How. Such notices shall be provided promptly, but in no event after more than [**] days following receipt thereof. In any such instance, the Parties shall cooperate in undertaking an appropriate course of action.

Section 9.5 Patent Invalidity Claim.

(a) If a Third Party at any time asserts a claim that any Licensed Patent Right is invalid or otherwise unenforceable ("Invalidity Claim"), whether as a defense in an infringement action brought by SANOFI-AVENTIS or MERRIMACK pursuant to Section 9.3 or in an action brought against SANOFI-AVENTIS or MERRIMACK under Section 9.4, including

any declaratory judgment action, the Parties shall cooperate with each other in preparing and formulating a response to such Invalidity Claim. Neither Party shall settle or compromise any Invalidity Claim without the consent of the other Party, which consent shall not be unreasonably withheld.

(b) If any Invalidity Claim is brought against SANOFI-AVENTIS or MERRIMACK in any new action (and not as a defense in any action brought by SANOFI-AVENTIS or MERRIMACK) asserting that any Therapeutic Patent Right is invalid or otherwise unenforceable, the Parties shall bear the costs of defending such Invalidity Claim in the same manner as they bear costs of Patent Prosecution pursuant to Section 9.2(d).

Section 9.6 Certification Under Drug Price Competition and Patent Restoration Act. If a Party becomes aware of any certification filed pursuant to (a) 21 U.S.C. §355(b)(2)(A)(iv) or 355(j)(2)(A)(vii)(IV), or any notice under any current or future provisions of United States Law relating to regulation or approval of biologics, or (b) any comparable Law under any other jurisdiction, including any amendment or successor statute to any of the foregoing clause (a) or (b), and such certification claims that any Licensed Patent Right or Joint Patent Right, in each case Covering a Collaboration Compound or Licensed Product in the Field, is invalid or otherwise unenforceable, or that infringement will not arise from the manufacture, use, import or sale or offer of sale of a product by a Third Party (a "Paragraph IV Certification"), such Party shall promptly notify the other Party in writing within [**] Business Days after its receipt thereof.

Section 9.7 Patent Marking. SANOFI-AVENTIS agrees to comply with the patent marking statutes in each country in which Licensed Products are sold by SANOFI-AVENTIS, its Affiliates or sublicensees.

Article X
Confidentiality

Section 10.1 Confidential Information. All Confidential Information disclosed by a Party or any of its Affiliates to the other Party or any of its Affiliates during the Term shall not be used by the receiving Party or any of its Affiliates except in connection with the activities contemplated by this Agreement, shall be maintained in confidence by the receiving Party and its Affiliates (except to the extent disclosure is reasonably necessary for research, development, manufacture or commercialization of a Collaboration Compound or Licensed Product as contemplated hereunder, for the filing, prosecution and/or maintenance of Patent Rights for which such receiving Party is responsible, or to enforce the provisions of this Agreement), and shall not otherwise be disclosed by the receiving Party or its Affiliates to any Person that is not a Party or one of its Affiliates (except as set forth in the remainder of this Article X), without the prior written consent of the disclosing Party, except to the extent that the Confidential Information:

(a) was known or used by the receiving Party or any of its Affiliates prior to its date of disclosure to the receiving Party; or

(b) either before or after the date of the disclosure to the receiving Party hereunder is lawfully disclosed to the receiving Party or any of its Affiliates by sources other than the disclosing Party rightfully in possession of the Confidential Information; or

(c) either before or after the date of the disclosure to the receiving Party hereunder becomes published or generally known to the public through no fault or omission on the part of the receiving Party; or

(d) is independently developed by or for the receiving Party or any of its Affiliates without reference to or reliance upon the Confidential Information; or

(e) is required to be disclosed by the receiving Party to comply with applicable Laws, including the rules of the SEC or any stock exchange, or to defend or prosecute litigation or to comply with legal process, provided that the receiving Party provides prior written notice of such disclosure to the disclosing Party (to the extent feasible) and only discloses Confidential Information of the other Party to the extent necessary for such legal compliance or litigation purpose.

Section 10.2 Employee, Director, Consultant and Advisor Obligations. SANOFI-AVENTIS and MERRIMACK each agrees that it and its Affiliates shall provide Confidential Information received from the other Party only to the receiving Party's respective employees, directors, consultants, agents and advisors, and to the employees, directors, consultants, agents and advisors of the receiving Party's Affiliates, who have a need to know such Confidential Information to assist the receiving Party in fulfilling its obligations under this Agreement and who are bound by obligations of confidentiality and non-use that are at least as restrictive as those set forth in this Agreement. Each Party shall remain responsible for any failure by any of such Party's Affiliates, employees, directors, consultants, agents and advisors to treat such Confidential Information as required under Section 10.1.

Section 10.3 Publicity.

(a) Upon execution of this Agreement, the Parties shall each separately issue a press release announcing the execution of this Agreement, substantially in the form of Exhibit F-1 or Exhibit F-2 attached hereto, as applicable. Thereafter, SANOFI-AVENTIS may issue press releases consistent with its own internal policies, provided that, unless not feasible under the circumstances because of the need to comply with applicable Laws or stock exchange rules, SANOFI-AVENTIS shall provide MERRIMACK with a copy of any draft press release related to the activities contemplated by this Agreement at least [**] Business Days prior to its intended publication for MERRIMACK's review. MERRIMACK may provide SANOFI-AVENTIS with suggested modifications to the draft press release. SANOFI-AVENTIS shall consider in good faith MERRIMACK's suggestions in issuing such press release.

(b) MERRIMACK shall only issue press releases or make other public disclosures related to this Agreement or the Parties' activities contemplated by this Agreement (each such press release or public disclosure, a "Subject Disclosure"):

(i) that have been approved by SANOFI-AVENTIS (such approval not to be unreasonably withheld, conditioned or delayed);

(ii) if advised by counsel to issue such Subject Disclosure in order to comply with applicable Laws, including the disclosure rules of the U.S. Securities and Exchange Commission ("SEC") or a similar regulatory agency in a country other than the United States or of any stock exchange of other securities trading institution (for clarity such issuance is also subject to Section 10.3(c));

(iii) if the contents of such Subject Disclosure have previously been made public other than through a breach of this Agreement by MERRIMACK; or

(iv) to the extent that such Subject Disclosure describes one or more of the following (and subject to SANOFI-AVENTIS' prior written authorization, which shall not be unreasonably withheld, delayed or conditioned):

(A) the commencement, completion or "top-line" results of clinical studies of any Collaboration Compound or Licensed Product;

(B) the completion of patient enrollments for clinical studies;

(C) the achievement of any clinical, regulatory, development or sales level event milestone hereunder;

(D) the filing for or receipt of Marketing Authorization with respect to any Collaboration Compound or Licensed Product;

(E) the presence and participation at scientific or financial forums; and

(F) MERRIMACK's own development and commercialization activities with respect to Collaboration Compounds or Licensed Products hereunder, including the development of sales, marketing and medical infrastructure and management changes to support such development and commercialization activities.

(c) Unless not feasible under the circumstances because of the need to comply with applicable Laws or stock exchange rules, MERRIMACK shall provide SANOFI-AVENTIS with a draft Subject Disclosure at least [**] Business Days prior to its intended publication for SANOFI-AVENTIS's review. SANOFI-AVENTIS may provide MERRIMACK with suggested modifications to the draft Subject Disclosure. MERRIMACK shall consider in good faith SANOFI-AVENTIS's suggestions in issuing such Subject Disclosure.

Section 10.4 Other Disclosures. Notwithstanding anything in this Agreement to the contrary, each Party shall have the right to disclose Confidential Information and/or the terms of this Agreement (as applicable):

(i) to investors, potential investors, lenders, potential lenders, acquirers, potential acquirers, investment bankers and other Third Parties in connection with

financing, partnering and acquisition activities, solely under obligations of confidentiality and non-use that are at least as restrictive as those set forth in this Article X;

(ii) to sublicensees, potential sublicensees, collaborators, potential collaborators, and Third Party contractors for purposes of engaging in the research, development, manufacture or commercialization of Collaboration Compounds or Licensed Products as contemplated hereunder, solely under obligations of confidentiality and non-use that are at least as restrictive as those set forth in this Article X;

(iii) as required by applicable Laws, including rules of the SEC or similar regulatory agency in a country other than the United States or of any stock exchange or other securities trading institution. In the event that this Agreement shall be included in any report, statement or

other document filed by either Party or an Affiliate of either Party with the SEC or similar regulatory agency in a country other than the United States or any stock exchange or other securities trading institution, such Party shall use, or shall cause such Party's Affiliate, as the case may be, to use, reasonable efforts to obtain confidential treatment from the SEC, similar regulatory agency, stock exchange or other securities trading institution of any financial information or other information of a competitive or confidential nature, and shall include in such confidentiality request such provisions of this Agreement as may be reasonably requested by the other Party.

Section 10.5 Publications.

(a) A Party seeking to publish or present scientific or technical data, results or other information with respect to any Collaboration Compound or Licensed Product (the "Publishing Party") shall provide the other Party and (if the JDC remains in place) the JDC with a copy of any proposed publication or presentation at least [**] days (or at least [**] days in the case of abstracts or oral presentations) prior to submission for publication by the Publishing Party or its Affiliates so as to provide such other Party with an opportunity to recommend any changes it reasonably believes are necessary to continue to maintain the Confidential Information disclosed by the other Party to the Publishing Party in accordance with the requirements of this Agreement or to not jeopardize the patentability of any results or data.

(b) If the non-Publishing Party notifies the Publishing Party that such publication or presentation, in the non-Publishing Party's reasonable judgment, (i) contains an invention for which such Party desires to obtain patent protection, or (ii) contains any Confidential Information of such Party, or could be expected to have an adverse effect on the commercial value of any Confidential Information disclosed by such Party to the Publishing Party, the Publishing Party shall delete such Confidential Information from the proposed publication or presentation and shall further delay such publication or presentation for a period reasonably sufficient to permit the timely preparation and filing of a patent application(s) on any invention disclosed in such publication or presentation (but no less than [**] days from the date of the non-Publishing Party's notice thereof).

(c) For as long as the JDC remains in place, the JDC shall be responsible for overseeing and facilitating the Parties' communications and activities with respect to publications and presentations under this Section 10.5, and for serving as the initial forum for

resolving any disputes (in accordance with Section 2.2(c)) between the Parties arising under this Section 10.5, with any unresolved disputes being escalated to the JSC and, if unresolved by the JSC, to the Executive Officers for resolution pursuant to Section 13.1. If the JDC is dissolved, the JSC shall be responsible for overseeing and facilitating such communications and activities between the Parties, and for serving as the initial forum for resolving any disputes that may arise between the Parties under this Section 10.5.

Section 10.6 Clinical Trial Registry. Each of SANOFI-AVENTIS and MERRIMACK shall have the obligation to the extent required by applicable Laws or regulations to publish summaries of data and results from any human clinical trials conducted by such Party under this Agreement on its clinical trials registry or on a government-sponsored database such as www.clinicaltrials.gov or other publicly available websites such as www.clinicalstudyresults.org, without requiring the consent of the other Party. The content of such publication shall be submitted to the JDC for prior approval.

Section 10.7 Term. All obligations of confidentiality imposed under this Article X shall expire five (5) years following termination or expiration of this Agreement.

Article XI
Representations and Warranties

Section 11.1 Representations and Warranties of Both Parties. Each Party hereby represents and warrants to the other Party, as of the Execution Date, that:

(a) such Party is duly organized, validly existing and in good standing under the Laws of the jurisdiction of its incorporation and has full corporate power and authority to enter into this Agreement and to carry out the provisions hereof;

(b) such Party has taken all necessary action on its part to authorize the execution and delivery of this Agreement and the performance of its obligations hereunder;

(c) this Agreement has been duly executed and delivered on behalf of such Party, and constitutes a legal, valid, binding obligation, enforceable against it in accordance with the terms hereof;

(d) the execution, delivery and performance of this Agreement by such Party does not conflict with any agreement or any provision thereof, or any instrument or binding understanding, oral or written, to which it is a party or by which it is bound, nor to the best of its knowledge violate any law or regulation of any court, governmental body or administrative or other agency having jurisdiction over such Party; and

(e) no government authorization, consent, approval, license, exemption of or filing or registration with any court or governmental department, commission, board, bureau, agency or instrumentality, domestic or foreign, under any applicable Laws currently in effect, is or will be necessary for, or in connection with, the transaction contemplated by this Agreement or any other agreement or instrument executed in connection herewith, or for the performance by

it of its obligations under this Agreement and such other agreements except as may be required to obtain HSR Clearance, to conduct clinical trials or to seek or obtain Marketing Authorizations.

Section 11.2 Representations and Warranties of MERRIMACK. MERRIMACK hereby represents and warrants to SANOFI-AVENTIS, as of the Execution Date, that, except as MERRIMACK has disclosed to SANOFI-AVENTIS as of the Execution Date:

(a) MERRIMACK is the owner of, or has Control of, the Licensed Patent Rights listed on Exhibit A-1 and Exhibit A-2;

(b) Exhibit A-1 and Exhibit A-2 is a complete and correct list of all Licensed Patent Rights that claim or are directed to MM-121 and are Controlled by MERRIMACK as of the Execution Date;

(c) MERRIMACK has the right to grant all rights and licenses it purports to grant to SANOFI-AVENTIS with respect to the Licensed Intellectual Property under this Agreement;

(d) MERRIMACK has not granted, as of the Execution Date, any right or license, to any Third Party relating to any of the Licensed Intellectual Property, that would conflict with, or limit the scope of, any of the rights or licenses granted to SANOFI-AVENTIS hereunder;

(e) MERRIMACK has not granted any liens or security interests on the Licensed Intellectual Property;

(f) To MERRIMACK's knowledge, after reasonable inquiry with respect to employees of MERRIMACK, it has not (i) employed or used any contractor or consultant that employs any individual or entity debarred by the FDA (or subject to a similar sanction of EMEA) or, (ii) employed any individual or entity that is the subject of an FDA debarment investigation or proceeding (or similar proceeding of EMEA), in each of clauses (i) and (ii) in the conduct of research and development activities directed to any Collaboration Compound or Licensed Product;

(g) As of the Execution Date, (i) MERRIMACK has not received any written allegation from a Third Party that any of the Licensed Patent Rights is invalid or unenforceable and (ii) MERRIMACK has not received any written notice that any Patent Right within the Licensed Patent Rights is subject to interference, reexamination, reissue, revocation, opposition, appeal or other administrative proceedings;

(h) To the knowledge of MERRIMACK, after reasonable inquiry, and excluding those patents and patent applications listed in Exhibit B, (i) the research, development, manufacture, use and/or sale as of the Execution Date of MM-121 as a therapeutic for [**] indications can be carried out in the manner contemplated by this Agreement without infringing any published patent applications (evaluating such patent applications as though they were issued with the claims as published as of the Execution Date) or issued patents Controlled by a Third Party, and (ii) the research, development, manufacture, and use prior to the Execution Date of

MM-121 by or on behalf of MERRIMACK has been carried out without infringing any published patent applications (evaluating such patent applications as though they were issued with the claims as published as of the Execution Date) or issued patents Controlled by a Third Party;

(i) MERRIMACK has not received, with respect to the Licensed Patent Rights or the Licensed Technology, any written notice of infringement or misappropriation or any other written communication relating to a possible infringement or misappropriation of any patent rights or any know-how Controlled by a Third Party;

(j) The Patent Rights listed in Exhibit A-1 and Exhibit A-2 represent all Patent Rights within MERRIMACK's Control necessary or useful for the development, manufacture and commercialization of a Therapeutic Product or Diagnostic Product, and the Licensed Technology generally summarized in Exhibit A-3 represents all material Know-How within MERRIMACK's Control necessary or useful for the development, manufacture and commercialization of MM-121;

(k) The Patent Rights listed on Exhibit A-1 and Exhibit A-2 (solely as to the knowledge of MERRIMACK as to Patent Rights not owned by MERRIMACK) have been filed in good faith, have been prosecuted in accordance with any applicable duty of candor, and have been maintained in a manner consistent with MERRIMACK's or its licensor's standard practice, in each applicable jurisdiction in which such Patent Rights have been filed, no official final deadlines with respect to prosecution thereof have been missed and all applicable fees have been paid on or before the due date for payment;

(l) All inventors of inventions claimed in the Patent Rights listed on Exhibit A-1 and Exhibit A-2 (solely as to the knowledge of MERRIMACK as to Patent Rights not owned by MERRIMACK) have assigned their entire right, title and interest in and to such inventions to MERRIMACK and the inventors listed are correct and there are no claims or assertions in writing received by MERRIMACK regarding the inventorship of such Patent Rights alleging that additional or alternative inventors ought to be listed;

(m) MERRIMACK has taken reasonable measures to protect the confidentiality of the Licensed Technology, and, to MERRIMACK's best knowledge, no event has occurred which has resulted in the unauthorized use or disclosure of the Licensed Technology by MERRIMACK or its personnel of any material part of the licensed Technology or which otherwise resulted in any material part of the Licensed Technology entering the public domain;

(n) MERRIMACK has provided SANOFI-AVENTIS with a complete and correct copy of each of the Existing Third Party Licenses;

(o) MERRIMACK is not in breach of any of the Existing Third Party Licenses and each of the Existing Third Party Licenses is in full force and effect; and

(p) To MERRIMACK's knowledge, after due and diligent inquiry, MERRIMACK has disclosed or made available to SANOFI-AVENTIS, on or before the

Execution Date, all material information and data in its possession regarding the Licensed Patent Rights, the Licensed Technology, and in particular material preclinical and clinical data and study reports and information on the manufacturing process with respect to MM-121.

(q) MERRIMACK hereby confirms that the full amino acid sequence of MM-121, as described in Exhibit C of this Agreement, is correct in every respect, and the VH and VL variable region amino acid sequences of MM-121, and their respective CDRs, are accurately described in the patent application [**].

Section 11.3 Mutual Covenants. Each Party hereby covenants to the other Party that:

(a) All employees of such Party or its Affiliates working under this Agreement will be under the obligation to assign all right, title and interest in and to their inventions and discoveries arising in the performance of such work, whether or not patentable, to such Party as the sole owner thereof;

(b) To its knowledge, such Party will not (i) employ or use any contractor or consultant that employs any individual or entity debarred by the FDA (or subject to a similar sanction of EMEA) or, (ii) employ any individual who or entity that is the subject of an FDA debarment investigation or proceeding (or similar proceeding of EMEA), in each of clauses (i) and (ii) in the conduct of its activities under this Agreement;

(c) Such Party shall perform its activities pursuant to this Agreement in compliance in all material respects with applicable Laws; and

(d) Neither Party shall, during the Term, grant any right or license to any Third Party relating to any of the intellectual property rights it owns or Controls which would conflict with, or limit the scope of, any of the rights or licenses granted or to be granted to the other Party hereunder.

Section 11.4 Additional Covenants of MERRIMACK. For the avoidance of doubt, as set forth in Section 7.3 and Section 7.4(b), MERRIMACK covenants to SANOFI-AVENTIS that:

(a) MERRIMACK shall use reasonable best efforts during the Development Term to disclose or make available to SANOFI-AVENTIS all material data and information in its possession or otherwise under its Control, regarding Licensed Products, Licensed Patent Rights and Licensed Technology, all the foregoing as may be necessary or useful for the research, development, manufacture or commercialization of Collaboration Compounds or Licensed Products hereunder; and

(b) During the Term, MERRIMACK shall use Commercially Reasonable Efforts to maintain the Existing Third Party Licenses in effect (and in particular shall use Commercially Reasonable Efforts not to commit any breach that would entitle the Third Party licensor to terminate an Existing Third Party License) and shall not terminate any Existing Third Party License without SANOFI-AVENTIS' prior written consent. In addition, during the Term, MERRIMACK shall promptly notify SANOFI-AVENTIS of any written notice of breach or

termination received by MERRIMACK with respect to any Existing Third Party License and SANOFI-AVENTIS shall have the right to cure any such breach on MERRIMACK's behalf.

Section 11.5 DISCLAIMER. EXCEPT AS OTHERWISE EXPRESSLY SET FORTH IN THIS AGREEMENT, NEITHER PARTY MAKES ANY REPRESENTATION OR EXTENDS ANY WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY THAT ANY PATENTS ARE VALID OR ENFORCEABLE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, EACH PARTY DISCLAIMS ANY WARRANTIES WITH REGARDS TO: (A) THE SUCCESS OF ANY STUDY OR TEST COMMENCED UNDER THIS AGREEMENT, (B) THE SAFETY OR USEFULNESS FOR ANY PURPOSE OF THE TECHNOLOGY OR MATERIALS, INCLUDING ANY COMPOUNDS, IT PROVIDES OR DISCOVERS UNDER THIS AGREEMENT; OR (C) THE VALIDITY, ENFORCEABILITY, OR NON-INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHTS OR TECHNOLOGY IT PROVIDES OR LICENSES TO THE OTHER PARTY UNDER THIS AGREEMENT.

Article XII
Term and Termination

Section 12.1 Term. This Agreement shall become effective as of the Effective Date, may be terminated as set forth in this Article XII, and otherwise remains in effect until the expiration of all payment obligations of SANOFI-AVENTIS under this Agreement (the "Term").

Section 12.2 Survival of Licenses. Notwithstanding anything herein, on a Licensed Product-by-Licensed Product and country-by-country basis, upon the expiration (but not the earlier termination) of all royalty payment obligations for a Licensed Product in a country, the licenses granted to SANOFI-AVENTIS in Section 7.1 shall be deemed to be perpetual and fully paid-up with respect to such Licensed Product in such country.

Section 12.3 No Effectiveness Upon HSR Denial. The Agreement shall not become effective (and accordingly shall immediately terminate) in the event that (a) the FTC or the DOJ shall seek a preliminary injunction under the HSR Act against MERRIMACK and SANOFI-AVENTIS to enjoin the transaction contemplated by this Agreement; or (b) the HSR Clearance Date shall not have occurred on or prior to the date sixty (60) days after the HSR Filings have been made pursuant to Section 15.1.

Section 12.4 Termination For Material Breach. Upon any material breach of this Agreement by either Party (in such capacity, the "Breaching Party"), the other Party (in such capacity, the "Non-Breaching Party") may terminate this Agreement by providing [**] days' prior written notice ([**] days' prior written notice with respect to any payment breach) to the Breaching Party, specifying the material breach. The termination shall become effective at the end of the [**] day (or, with respect to any payment breach, [**] day) period unless (a) the Breaching Party cures such breach during such [**] day (or, with respect to any payment breach, [**] day) period (unless the Party owing payment believes in good faith that such payment is not due and has notified the other Party thereof (including the basis of its good faith belief in

reasonable detail) and paid any undisputed amount to the other Party, in which case the dispute shall be settled in accordance with Article XIII, and the Agreement shall not be terminated as long as the dispute is pending), or (b) solely with respect to a breach that is not a payment breach, if such breach is not susceptible to cure within [**] days of the receipt of written notice of the breach, the Breaching Party is diligently pursuing a cure (unless such breach, by its

nature, is incurable, in which case the Agreement may be terminated immediately) and effects such cure within an additional [**] days after the end of such [**] day period.

Section 12.5 Termination by SANOFI-AVENTIS for Convenience. SANOFI-AVENTIS shall have the right to terminate this Agreement, with respect to one or more Licensed Products and/or with respect to (a) one or more Major Territories (but not solely for one or more country or countries within a major Territory) or (b) any country or countries which is(are) not part of a Major Territory, or in its entirety, at any time for any reason upon one-hundred eighty (180) days prior written notice, provided, that after receiving such notice MERRIMACK shall have the right to elect, in MERRIMACK's sole option and discretion and by written notice to SANOFI-AVENTIS, to accelerate such termination period to a date specified by MERRIMACK. For clarity, other than SANOFI-AVENTIS' obligations explicitly set forth in Sections 12.7 (or 12.8 as applicable) and 12.10, no compensation whatsoever shall be due by SANOFI-AVENTIS by reason of termination under this Section 12.5. Notwithstanding the foregoing, if SANOFI-AVENTIS terminates this Agreement pursuant to this Section 12.5 in all three of the Major Territories, this Agreement shall be deemed terminated in its entirety.

Section 12.6 Termination by MERRIMACK for SANOFI-AVENTIS Patent Challenge. If SANOFI-AVENTIS or any of its Affiliates or sublicensees challenges the validity, enforceability, patentability or scope of any claim(s) included in any Licensed Patent Rights, or supports, directly or indirectly, any such challenge (any of the foregoing, a "Patent Challenge"), MERRIMACK shall have the right to terminate this Agreement upon thirty (30) days' written notice to SANOFI-AVENTIS with respect to the Licensed Patent Right(s) so challenged by SANOFI-AVENTIS or any of its Affiliates or sublicensees.

Section 12.7 Effects of Termination by MERRIMACK for SANOFI-AVENTIS Uncured Breach or SANOFI-AVENTIS Patent Challenge, or Termination by SANOFI-AVENTIS of Entire Agreement for Convenience. Upon termination of this Agreement in its entirety by MERRIMACK pursuant to Section 12.4 (Termination for Material Breach) or pursuant to Section 12.6 (Termination for SANOFI-AVENTIS Patent Challenge), or termination of this Agreement in its entirety by SANOFI-AVENTIS pursuant to Section 12.5 (Termination by SANOFI-AVENTIS for Convenience):

(a) All rights and licenses granted by MERRIMACK to SANOFI-AVENTIS shall terminate and revert to MERRIMACK;

(b) SANOFI-AVENTIS shall transfer to MERRIMACK ownership of all Regulatory Approvals and regulatory filings, data and dossier in SANOFI-AVENTIS's or its Affiliates' possession or control relating to all Collaboration Compounds and Licensed Products; (for clarity the foregoing obligation shall not apply in case of termination by SANOFI-AVENTIS for MERRIMACK uncured material breach);

(c) SANOFI-AVENTIS shall assign to MERRIMACK its entire right, title, and interest in and to all preclinical and clinical data, safety data and all other supporting data, including pharmacology and biology data, in SANOFI-AVENTIS's or its Affiliates' possession or control relating to, and to the extent necessary for MERRIMACK to continue the research, development or commercialization of, Collaboration Compounds and Licensed Products;

(d) At MERRIMACK's option and upon MERRIMACK's request as to any or all of the following, SANOFI-AVENTIS (or its relevant Affiliate) shall:

(i) transfer to MERRIMACK (or its designee) the manufacturing process, documents, materials and other Know-How, to the extent the foregoing is Controlled by SANOFI-AVENTIS, it being understood that in the case of any manufacturing process or other Know-How, SANOFI-AVENTIS shall only be committed to transfer to MERRIMACK what it is legally or contractually, as applicable, permitted to transfer, and shall use Commercially Reasonable Efforts to have transferred to MERRIMACK any process or other Know-How which is not under the Control of SANOFI-AVENTIS (in all cases provided that SANOFI-AVENTIS shall not be committed to incur any costs pursuant to the use of such process or other Know-How by or on behalf of MERRIMACK) which are used (at the time of the termination) by or on behalf of SANOFI-AVENTIS, its Affiliates or sublicensees in the manufacture of such Collaboration Compounds and Licensed Products, and provide reasonable technical assistance relating to the manufacture, testing and supply of such Collaboration Compounds and Licensed Product as necessary for MERRIMACK to be qualified or to qualify a Third Party for the manufacturing of such Collaboration Compounds or Licensed Products, such assistance being limited to assistance that a manufacturer familiar with, and having experience with equipment for, manufacturing of antibodies and products containing antibodies, would require, and in any case not to exceed a total of [**] hours of working time by SANOFI-AVENTIS' personnel over a period not to exceed [**] months;

(ii) sell to MERRIMACK (or its designee) SANOFI-AVENTIS's then-existing inventory of such Collaboration Compounds and Licensed Products, at SANOFI-AVENTIS's Manufacturing Cost plus [**] percent ([**]%);

(iii) to the extent SANOFI-AVENTIS (or an Affiliate of SANOFI-AVENTIS) is manufacturing (on its own or through any Third Party contract manufacturer) any Collaboration Compound or Licensed Product, continue to manufacture and supply such Collaboration Compounds and Licensed Product to MERRIMACK, for a period up to [**] years, until manufacturing has been transitioned to MERRIMACK hereunder. SANOFI-AVENTIS shall be obligated to supply quantities of such Collaboration Compounds and Licensed Products sufficient to satisfy MERRIMACK's requirements under a manufacturing transfer and transition plan to be negotiated by the Parties in good faith so that MERRIMACK can assume all development and commercialization activities with regard to such Collaboration Compounds and Licensed Products. SANOFI-AVENTIS will supply such quantities of Collaboration Compounds and Licensed Product at SANOFI-AVENTIS's Manufacturing Cost plus [**] percent ([**]%);

(iv) assign or cause the assignment to MERRIMACK of any and all applicable Third Party manufacturing and supply agreements for such Collaboration Compounds

or Licensed Products, to the extent assignable, and, at MERRIMACK's direction, facilitate discussions with the applicable Third Party manufacture with respect to such agreements;

(v) Promptly transfer to MERRIMACK or its designee on-going clinical trials being conducted by or under authority of SANOFI-AVENTIS as of the date of the termination notice, continue to conduct such clinical trials up to such transfer or, if requested by MERRIMACK,

terminate such clinical trials in a manner conforming to applicable Laws and regulations. It is understood that SANOFI-AVENTIS shall in no case be obligated to incur costs beyond those budgeted for the termination period in the Global Development Plan applying to such period, costs related to any change of any kind decided by MERRIMACK to the Global Development Plan, costs related to any translation or reformatting of documents or databases (it being understood that any data or data bases shall be transferred on an as is basis) or costs related to converting or adapting any database or software; and

(vi) Transfer to MERRIMACK any Marketing Authorization obtained on or before the date of termination and, if commercial launch of Licensed Product(s) has occurred on or before the date of termination, SANOFI-AVENTIS shall, at the request of MERRIMACK, continue to market, promote, distribute and commercialize the Licensed Product(s), and continue to pay amounts due to MERRIMACK pursuant to Article VIII, until the date when, on a country-by-country basis, the Marketing Authorization has been transferred to MERRIMACK or MERRIMACK's designee;

(e) SANOFI-AVENTIS shall grant to MERRIMACK, effective upon termination of the Agreement by MERRIMACK under Section 12.4 (Termination for Material Breach) or 12.6 (Termination for SANOFI-AVENTIS Patent Challenge) or by SANOFI-AVENTIS under Section 12.5 (Termination for Convenience), a non-exclusive, worldwide, royalty-free, irrevocable, perpetual license, with the right to grant sublicenses to any Third Party, under the SANOFI-AVENTIS Patent Rights and SANOFI-AVENTIS Technology, including SANOFI-AVENTIS's interest in any Joint Patent Rights or Joint Technology, in each case to the extent used by SANOFI-AVENTIS, its Affiliates or sublicensees in the research, development, manufacture or commercialization of Collaboration Compounds or Licensed Products in the Field and for the sole purpose of conducting research, development, manufacturing and/or commercialization of Collaboration Compounds or Licensed Products in the Field (for clarity SANOFI-AVENTIS shall retain the right to all other uses and practice of the SANOFI-AVENTIS Patent Rights and SANOFI-AVENTIS Technology, including SANOFI-AVENTIS' interest in any Joint Patent Rights or Joint Technology); and

(f) SANOFI-AVENTIS shall assign to MERRIMACK SANOFI-AVENTIS's and its Affiliates' entire right, title and interest in, to and under any trademark used by SANOFI-AVENTIS, its Affiliates or sublicensees exclusively in connection with the marketing and sale of a Licensed Product, it being understood that such assignment shall not include the SANOFI-AVENTIS name or trademark for the SANOFI-AVENTIS company itself.

Section 12.8 Effects of Termination with Respect to One or More, but Not All, Licensed Products, Major Territories or Countries by SANOFI-AVENTIS for Convenience. If this Agreement is terminated pursuant to Section 12.5 with respect to one or more Licensed

Products ("Terminated Products") or with respect to one or more Major Territories or to countries outside a Major Territory (collectively, the "Terminated Territories"), then:

(a) the effects of termination set forth in Sections 12.7(a), 12.7(d)(v), 12.7(d)(vi), 12.7(e) and 12.7(f) above shall apply solely as to such Terminated Territories (in case the Agreement is terminated with respect to one or more Terminated Territories) and the effects of termination set forth in Sections 12.7(a), 12.7(d), 12.7(e) and 12.7(f) above shall apply solely as to such Terminated Products (in case the Agreement is terminated with respect to one or more Terminated Products);

(b) in lieu of the effects of termination set forth in Section 12.7(b) with respect to regulatory filings and Regulatory Approvals, SANOFI-AVENTIS shall:

(i) transfer to MERRIMACK ownership of all such regulatory filings filed in, and Regulatory Approvals received with respect to, any Terminated Products and/or Terminated Territory (or any country therein), which filings or Regulatory Approvals are in SANOFI-AVENTIS's or its Affiliates' possession or control and relate to Collaboration Compounds and Licensed Products; and

(ii) to the extent necessary for MERRIMACK to resume development or manufacturing or commercialization of a Collaboration Compound or a Licensed Product in any Terminated Territory,

(A) grant MERRIMACK or its designee a right of reference or use to any and all such regulatory filings filed in, and Regulatory Approvals received with respect to, any country or territory other than a Terminated Territory (or any country therein), which filings or Regulatory Approvals are in SANOFI-AVENTIS's or its Affiliates' possession or control and relate to Collaboration Compounds and Licensed Products, (for clarity SANOFI-AVENTIS shall transfer to MERRIMACK ownership of all such regulatory filings and Regulatory Approvals in the event of a termination of this Agreement in its entirety (except for a termination by SANOFI-AVENTIS for MERRIMACK uncured material breach)); and

(B) sign, and cause its Affiliates to sign, any instruments reasonably requested by MERRIMACK in order to effect the grants contemplated above in this Section 12.8(b);

(c) SANOFI-AVENTIS shall transfer to MERRIMACK, and grant MERRIMACK a right to use (consistent with the license granted to MERRIMACK under Section 12.7(e)), all preclinical and clinical data, safety data and all other supporting data, including pharmacology and biology data, in SANOFI-AVENTIS's or its Affiliates' possession or control relating to, and to the extent necessary for MERRIMACK to continue, the research, development or commercialization of Terminated Products, or of Collaboration Compounds or Licensed Products in any Terminated Territory(ies), as applicable; and

(d) in lieu of the effects of termination set forth in Sections 12.7(d)(i), 12.7(d)(ii), 12.7(d)(iii) and 12.7(d)(iv), if the Agreement is only terminated with respect to one or more Major Territories or any country(ies) outside a Major Territory (but not if the Agreement

is terminated with respect to a Licensed Product for the entire Territory), SANOFI-AVENTIS shall elect, at its option and upon written notice to MERRIMACK (such notice to be provided by SANOFI-AVENTIS at the time it delivers the notice of termination to MERRIMACK under Section 12.5), to either (i) continue to supply MERRIMACK with Collaboration Compounds or Licensed Products, at SANOFI-AVENTIS' Manufacturing Costs plus [**] percent ([**]%) or (ii) comply with the provisions of Sections 12.7(d)(i), 12.7(d)(iii) and 12.7(d)(iv).

Section 12.9 Licensing/Sublicensing Revenues. If, subsequent to a partial or an entire termination of the Agreement by SANOFI-AVENTIS under Section 12.5 or a termination by MERRIMACK under Section 12.4 or 12.6 that occurs after a Licensed Product has received Marketing Authorization in either the USA or the EU, MERRIMACK enters into one or more licensing or other arrangements in which a Third Party is granted commercialization rights with respect to any Collaboration Compound(s) or Licensed Product(s) whereby (a) any data or license rights assigned or licensed by SANOFI-AVENTIS to MERRIMACK pursuant to Section 12.7 are granted to such Third Party and (b) MERRIMACK receives any revenues or any other consideration for the grant of such licenses or other arrangements (including but not limited to upfront payments, license fees, regulatory or sales milestone payments, royalties and/or profit sharing revenues), but excluding (i) funding for research and development and other activities to be undertaken by MERRIMACK and (ii) the purchase price of any MERRIMACK debt or equity securities issued to the licensee in such transactions (any of the foregoing, excluding the items in the foregoing clauses (i) and (ii), "Licensing Revenues"), then MERRIMACK shall promptly inform SANOFI-AVENTIS thereof and MERRIMACK shall pay to SANOFI-AVENTIS a non-refundable royalty of [**] percent ([**]%) of the excess (if any) of (x) such Licensing Revenues over (y) any amounts payable by MERRIMACK to Third Party licensors and amounts incurred by MERRIMACK as unreimbursed development and/or commercialization costs in order to be entitled to the Licensing Revenues. Payment of the aforesaid amounts shall be due and payable by MERRIMACK to SANOFI-AVENTIS quarterly within thirty (30) days after the end of each calendar quarter in which such Licensing Revenues are received by MERRIMACK.

Section 12.10 Survival.

(a) Upon expiration or termination of this Agreement for any reason, all rights and obligations of each Party shall terminate hereunder, except as expressly set forth in Section 12.2, 12.7, 12.8, 12.9 or this Section 12.10; provided, however, that nothing in this Agreement shall be construed to release either Party from any obligations or liabilities that matured prior to the effective date of expiration or termination, or which are attributable to a period prior to such expiration or termination. In addition, and notwithstanding the terms of Section 12.7(d)(v) and Section 12.8(a), SANOFI-AVENTIS shall remain responsible for payment to MERRIMACK of all such costs that are committed by MERRIMACK in connection with any human clinical trials conducted by MERRIMACK hereunder for a period of three months beyond the effective date of termination by SANOFI-AVENTIS under Section 12.5, to the extent that the clinical trials giving rise to such costs were non-terminable as of the date of termination of this Agreement, for ethical or regulatory reasons.

(b) Notwithstanding anything in this Agreement to the contrary, the following provisions shall expressly survive any expiration or termination of this Agreement in accordance with their terms: Article VIII (in each case, to the extent any amounts are due but unpaid as of

the effective date of expiration or termination); Section 8.6; Section 9.1; Article X; Sections 12.2, 12.7-12.10; Article XIII; Article XIV; and Article XVI.

Article XIII
Dispute Resolution

Section 13.1 Disputes; Executive Officers.

(a) In the event any dispute arises out of or in relation to or in connection with this Agreement, including failure to perform under or breach of, the Agreement or any issue relating to the interpretation or application of the Agreement, the Parties shall use good faith efforts to resolve such dispute within thirty (30) days, through the JDC, JCC or JSC, as applicable, if the dispute is within the responsibilities of such a committee. If the Parties are unable to resolve such dispute, at the JDC, JCC or JSC level or otherwise, within such thirty (30) day period, or a dispute is within the responsibilities of the JSC but the JSC no longer remains in place at the time of such dispute and the Parties are unable to resolve such dispute within thirty (30) days (as set forth in Section 2.1(f)), the Parties shall refer such dispute to their respective Executive Officers, and such Executive Officers shall attempt in good faith to resolve such dispute within thirty (30) days, except for (i) any dispute concerning inventorship arising under Section 9.1(c), which shall not be subject to resolution by the Executive Officers under this Section 13.1 or by binding arbitration under Section 13.2, but shall instead be resolved by independent patent counsel as set forth therein, or (ii) any dispute between the Parties with respect to the conformity of MM-121 with the applicable specifications, which shall not be subject to resolution by the Executive Officers under this Section 13.1 or by binding arbitration under Section 13.2, but shall instead be resolved by an independent analytical laboratory jointly selected by SANOFI-AVENTIS and MERRIMACK as set forth in Section 3.4(b)(iii).

(b) In addition, any dispute with respect to which a Party has final decision-making authority pursuant to Section 2.1(f) (each, a "Non-Arbitrable Dispute"), if unresolved at the JSC level or by the Executive Officers after escalation to the Executive Officers, shall not be subject to resolution by binding arbitration under Section 13.2, but shall instead be resolved by the Party having such final decision-making authority over such Non-Arbitrable Dispute (subject to any limitations on such authority set forth in Section 2.1(f)).

(c) For purposes of clarity, all other disputes arising under or relating to this Agreement, or the interpretation thereof (*i.e.*, disputes other than Non-Arbitrable Disputes or disputes concerning inventorship, and disputes that (y) are not within the jurisdiction of a committee or (z) are within the jurisdiction of a committee but that committee is no longer in place at the time of the dispute), shall be referred to the Executive Officers for resolution within the thirty (30) day period set forth in this Section 13.1 above and, if the Executive Officers are unable to resolve such dispute within such thirty (30) day period, to binding arbitration for resolution pursuant to Section 13.2.

Section 13.2 Arbitration. If the Executive Officers are unable to resolve a given dispute referred to such Executive Officers pursuant to Section 13.1 within thirty (30) days following such referral of such dispute to such Executive Officers, except for any Non-Arbitrable Disputes,

either Party may have the given dispute settled by binding arbitration in the manner described below:

(a) Arbitration Request. If a Party intends to begin an arbitration to resolve a dispute arising under this Agreement, such Party shall provide written notice (the "Arbitration Request") to the other Party of such intention and the issues for resolution.

(b) Additional Issues. Within ten (10) days after the receipt of the Arbitration Request, the other Party may, by written notice, add additional issues for resolution.

(c) Arbitration Location; Rules. Except as expressly provided herein, the sole mechanism for resolution of any claim, dispute or controversy arising out of or in connection with or relating to this Agreement or the breach or alleged breach thereof shall be arbitration by the American Arbitration Association ("AAA") in Washington, D.C., or in such other venue as the Parties agree, under the International Arbitration Rules then in effect for the AAA except as provided herein.

(d) English Language. All proceedings shall be held in English and a transcribed record prepared in English. Documents submitted in the arbitration (the originals of which are not in English) shall be submitted together with a reasonably complete and accurate English translation.

(e) Selection of Arbitrators. The Parties shall each choose, one arbitrator within thirty (30) days of receipt of notice of the intent to arbitrate and the said two arbitrators shall select by mutual agreement a third arbitrator within thirty (30) days after they have been selected as arbitrators. If no arbitrator is appointed within the times herein provided or any extension of time that is mutually agreed on, the AAA shall make such appointment (i.e. shall appoint three arbitrators) within thirty (30) days of such failure.

(f) Costs; Exclusion from Award. The award rendered by the arbitrators shall not include costs of arbitration, attorneys' fees or costs for expert and other witnesses, which shall be the responsibility of each Party (i.e. each Party shall bear its own costs and expenses), except that the Parties shall share equally the fees of the arbitrators.

(g) Time Schedule. Within thirty (30) days of initiation of arbitration, the Parties shall reach agreement upon and thereafter follow procedures directed at assuring that the arbitration will be concluded and the award rendered within no more than six (6) months from selection of the three arbitrators. Failing such agreement, the AAA will design and the Parties will follow procedures directed at meeting such a time schedule.

(h) Powers of Arbitrators. The arbitrators:

(i) shall not have any power or authority to add to, alter, amend or modify the terms of this Agreement but shall specify rules sufficient to allow reasonable discovery by the Parties;

(ii) shall establish and enforce appropriate rules to ensure that the proceedings, including the decision, be kept confidential and that all Confidential Information of the Parties be kept confidential and be used for no purpose other than the arbitration;

(iii) shall have the power to enforce specifically this Agreement and the terms and conditions hereof in addition to any other remedies at law or in equity; and

(iv) shall issue all decisions in writing.

(i) Injunctive Relief. Nothing in this Agreement shall be deemed as preventing either Party from seeking injunctive relief (or any other provisional remedy such as temporary restraining order, preliminary injunction or other interim equitable relief) from the arbitrators or from any court having jurisdiction over the Parties (and prior to or during any arbitration if necessary to protect the interests of such Party in avoiding irreparable harm or to preserve the status quo pending the arbitration proceeding) and the subject matter of the dispute as necessary to protect either Party's name, proprietary information, trade secrets, know-how or any other proprietary right or otherwise to avoid irreparable harm.

(j) Experience. If the issues in dispute involve scientific or technical matters, any arbitrators chosen hereunder shall have educational training and/or experience sufficient to demonstrate a reasonable level of knowledge in the pharmaceutical and biotechnology fields.

(k) Judgment. Judgment on the award rendered by the arbitrators may be entered in any court having jurisdiction thereof.

(l) Survivability. Any duty to arbitrate under the Agreement shall remain in effect and be enforceable after termination of the Agreement.

Article XIV
Indemnification

Section 14.1 Indemnification by SANOFI-AVENTIS. SANOFI-AVENTIS shall indemnify, defend and hold harmless MERRIMACK and its Affiliates, and its and their respective directors, officers, employees and agents, from and against any and all liabilities, damages, losses, costs and expenses, including the reasonable fees of attorneys and other professional Third Parties (collectively, "Losses"), arising out of or resulting from any and all Third Party suits, claims, actions, proceedings or demands ("Claims") based upon:

(a) the negligence, recklessness or wrongful intentional acts or omissions of SANOFI-AVENTIS or its Affiliates and its or their respective directors, officers, employees and agents, in connection with SANOFI-AVENTIS's performance of its obligations or exercise of its rights under this Agreement;

(b) any breach of any representation, warranty or covenant made by SANOFI-AVENTIS under this Agreement;

(c) any act or omission by SANOFI-AVENTIS that results in a breach of any of MERRIMACK's agreements with MERRIMACK Third Party licensors; or

(d) the research or development activities that are actually conducted by or on behalf of SANOFI-AVENTIS, the handling and storage by or on behalf of SANOFI-AVENTIS of any chemical agents or other compounds for the purpose of conducting research and development by or on behalf of SANOFI-AVENTIS, and the manufacture or commercialization (including marketing and sale) by SANOFI-AVENTIS, its Affiliates or sublicensees of any Collaboration Compound or Licensed Product, including (i) any product liability, personal injury, property damage or other damage, and (ii) infringement of any patent or other intellectual property right of any Third Party (subject to the rights of SANOFI-AVENTIS under Section 8.4(h) and excluding any such infringement Losses arising from a breach by MERRIMACK of its representations and warranties set forth in Section 11.2), in each case resulting from any of the foregoing activities described in this Section 14.1.

Section 14.2 Indemnification by MERRIMACK. MERRIMACK shall indemnify, defend and hold harmless SANOFI-AVENTIS and its Affiliates, and its or their respective directors, officers, employees and agents, from and against any and all Losses, arising out of or resulting from any and all Third Party Claims based upon:

(a) the negligence, recklessness or wrongful intentional acts or omissions of MERRIMACK or its Affiliates or its or their respective directors, officers, employees and agents, in connection with MERRIMACK's performance of its obligations or exercise of its rights under this Agreement;

(b) any breach of any representation, warranty or covenant made by MERRIMACK under this Agreement;

(c) the research or development activities that are actually conducted by or on behalf of MERRIMACK, the handling and storage by or on behalf of MERRIMACK of any chemical agents or other compounds for the purpose of conducting research or development by or on behalf of MERRIMACK, the manufacture by or on behalf of MERRIMACK of any Collaboration Compound (or Licensed Product, as applicable) and the Co-Promotion by or on behalf of MERRIMACK of any Co-Promoted Product, including any product liability, personal injury, property damage or other damage, in each case resulting from any of the foregoing activities described in this Section 14.2; or

(d) infringement of any patent or other intellectual property right of any Third Party arising from a breach by MERRIMACK of its representations and warranties set forth in Section 11.2.

Section 14.3 Procedure.

(a) A Person entitled to indemnification under this Article XIV (an "Indemnified Party") shall give prompt written notification to the Person from whom indemnification is sought (the "Indemnifying Party") of the commencement of any action, suit or proceeding relating to a Third Party claim for which indemnification may be sought or, if earlier, upon the assertion of any such claim by a Third Party (it being understood and agreed, however, that the failure by an Indemnified Party to give notice of a Third-Party claim as provided in this Section 14.3 shall not relieve the Indemnifying Party of its indemnification obligation under this

Agreement except and only to the extent that such Indemnifying Party is actually damaged as a result of such failure to give notice).

(b) Within twenty (20) days after delivery of such notification, the Indemnifying Party may, upon written notice thereof to the Indemnified Party, assume control of the defense of such action, suit, proceeding or claim with counsel reasonably satisfactory to the Indemnified Party.

(c) If the Indemnifying Party does not assume control of such defense, the Indemnified Party shall control such defense and, without limiting the Indemnifying Party's indemnification obligations, the Indemnifying Party shall reimburse the Indemnified Party for all costs and expenses, including reasonable attorney's fees, incurred by the Indemnified Party in defending itself within thirty (30) days after receipt of any invoice therefor from the Indemnified Party.

(d) The Party not controlling such defense may participate therein at its own expense; provided that, if the Indemnifying Party assumes control of such defense and the Indemnified Party in good faith concludes, based on advice from counsel, that the Indemnifying Party and the Indemnified Party have conflicting interests with respect to such action, suit, proceeding or claim, the Indemnifying Party shall be responsible for the reasonable fees and expenses of counsel to the Indemnified Party in connection with its participation in the defense action.

(e) The Party controlling such defense shall keep the other Party advised of the status of such action, suit, proceeding or claim and the defense thereof and shall consider recommendations made by the other Party with respect thereto.

(f) The Indemnified Party shall not agree to any settlement of such action, suit, proceeding or claim without the prior written consent of the Indemnifying Party, which shall not be unreasonably withheld, delayed or conditioned. The Indemnifying Party shall not agree to any settlement of such action, suit, proceeding or claim or consent to any judgment in respect thereof that does not include a complete and unconditional release of the Indemnified Party from all liability with respect thereto, that imposes any liability or obligation on the Indemnified Party or that acknowledges fault by the Indemnified Party without the prior written consent of the Indemnified Party.

Section 14.4 Insurance. Each Party shall procure and maintain insurance, including product liability insurance, adequate to cover its obligations and liabilities hereunder and which are consistent with normal business practices of comparable companies with respect to similar obligations and liabilities, at all times during which Collaboration Compounds and Licensed Products are clinically tested or commercially distributed or sold by or on behalf of such Party or its Affiliates. It is understood that such insurance shall not be construed to create any limit of either Party's obligations or liabilities with respect to its indemnification obligations hereunder. Each Party shall provide the other, upon request, with evidence of such insurance.

Section 14.5 Limitation of Liability. EXCEPT TO THE EXTENT SUCH PARTY MAY BE REQUIRED TO INDEMNIFY THE OTHER PARTY UNDER THIS ARTICLE XIV

WITH RESPECT TO THIRD PARTY CLAIMS, NEITHER PARTY NOR ITS RESPECTIVE AFFILIATES OR SUBLICENSEES SHALL BE LIABLE FOR ANY (AND HEREBY DISCLAIM ALL) SPECIAL, EXEMPLARY, CONSEQUENTIAL, PUNITIVE OR OTHER INDIRECT DAMAGES,

WHETHER BASED UPON WARRANTY, CONTRACT, TORT, STRICT LIABILITY OR OTHER LEGAL THEORY.

Article XV
HSR Matters

Section 15.1 HSR Filings. Each of MERRIMACK and SANOFI-AVENTIS shall as promptly as possible, and not later than October 9, 2009, file with the FTC and the Antitrust Division of the DOJ, any HSR Filing required of it under the HSR Act with respect to the transactions contemplated by this Agreement. The Parties shall cooperate with one another to the extent necessary in the preparation of any HSR Filing required to be filed under the HSR Act. Each Party shall be responsible for its own costs, expenses, and filing fees associated with any HSR Filing.

Section 15.2 HSR Cooperation; Further Assurances. MERRIMACK and SANOFI-AVENTIS agree, and shall cause each of their respective Affiliates, to cooperate and to use their respective reasonable efforts to obtain any HSR Clearance required for the consummation of the transactions contemplated under this Agreement, to request early termination of the applicable waiting period under the HSR Act (if HSR Clearance is required) and to respond to any government requests for information under the HSR Act. The Parties will consult and cooperate with one another, and consider in good faith the views of one another, in connection with any analyses, appearances, presentations, memoranda, briefs, arguments, opinions and proposals made or submitted by or on behalf of either Party in connection with proceedings under or relating to the HSR Act.

Section 15.3 HSR-Related Defined Terms.

(a) "DOJ" means the United States Department of Justice.

(b) "FTC" means the United States Federal Trade Commission.

(c) "HSR Act" means the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended (15 U.S.C. Sec. 18a), and the rules and regulations promulgated thereunder.

(d) "HSR Clearance" means either (i) early termination of the applicable waiting period under the HSR Act with respect to the HSR Filings or (ii) expiration of the applicable waiting period under the HSR Act with respect to the HSR Filings.

(e) "HSR Clearance Date" means the earlier of (i) the date on which the FTC or DOJ shall notify MERRIMACK and SANOFI-AVENTIS of early termination of the applicable waiting period under the HSR Act or (ii) the day after the date on which the applicable waiting period under the HSR Act expires.

(f) "HSR Filings" means the filings by SANOFI-AVENTIS and MERRIMACK with the FTC and the Antitrust Division of the DOJ of a Notification and Report Form for Certain Mergers and Acquisitions (as that term is defined in the HSR Act) with respect to the matters set forth in this Agreement, together with all required documentary attachments thereto.

Article XVI
Miscellaneous Provisions

Section 16.1 Governing Law. Except for matters of intellectual property law, which shall be determined in accordance with the national intellectual property laws relevant to the intellectual property in question, this Agreement, and any disputes between the Parties relating to the subject matter of this Agreement, shall be construed and the respective rights of the Parties hereto determined according to the substantive laws of the Commonwealth of Massachusetts, excluding (a) its conflicts of laws principles; (b) the United Nations Conventions on Contracts for the International Sale of Goods; (c) the 1974 Convention on the Limitation Period in the International Sale of Goods (the "1974 Convention"); and (d) the Protocol amending the 1974 Convention, done at Vienna April 11, 1980.

Section 16.2 Assignment. Neither MERRIMACK nor SANOFI-AVENTIS may assign this Agreement in whole or in part without the prior written consent of the other, except to an Affiliate or in connection with the merger, sale or transfer of all or substantially all of the stock, assets or business of MERRIMACK, on the one hand, or SANOFI-AVENTIS, on the other, to which the subject matter of this Agreement pertains. Notwithstanding the foregoing, either Party may assign its rights and/or its obligations pursuant to this Agreement in whole or in part to an Affiliate of such Party. The assigning Party shall remain primarily liable for the performance of this Agreement notwithstanding any such assignment of this Agreement. For clarity, if MERRIMACK's right to Co-Promote Licensed Product(s) is terminated pursuant to Section 5.4(c), nothing in this Section 16.2 shall be construed as preventing or limiting such termination in any way.

Section 16.3 Standstill.

(a) SANOFI-AVENTIS hereby agrees that, during the Standstill Period unless specifically invited in writing by MERRIMACK to do so, neither SANOFI-AVENTIS nor any of its Affiliates will, or will cause or knowingly permit any of its or their directors, officers, employees, investment bankers, attorneys, accountants or other advisors or representatives to, in any manner, directly or indirectly:

(i) effect or seek, initiate, offer or propose (whether publicly or otherwise) to effect, or cause or participate in or in any way advise or, assist any other person to effect or seek, initiate, offer or propose (whether publicly or otherwise) to effect or cause or participate in, any acquisition of any securities (or beneficial ownership thereof) or assets of MERRIMACK; any tender or exchange offer, merger, consolidation or other business combination involving MERRIMACK; any recapitalization, restructuring, liquidation, dissolution or other extraordinary transaction with respect to MERRIMACK; or any

"solicitation" of "proxies" (as such terms are used in the proxy rules of the SEC) or consents to vote any voting securities of MERRIMACK;

(ii) form, join or in any way participate in a "group" (as defined under the Securities Exchange Act of 1934, as amended) with respect to any securities of MERRIMACK;

(iii) otherwise act, alone or in concert with others, to seek to control or influence the management, Board of Directors or policies of MERRIMACK (except as contemplated by this Agreement in relation to the Parties' co-development or commercialization of Collaboration Compounds and Licensed Product(s));

(iv) take any action which could reasonably be expected to force MERRIMACK to make a public announcement regarding any of the types of matters set forth in this Section 16.3; or

(v) enter into any agreements, discussions or arrangements with any Third Party with respect to any of the foregoing.

(b) Nothing in this Section 16.3 shall prohibit SANOFI-AVENTIS or its Affiliates from owning or making open market purchases of any voting securities of MERRIMACK, or any securities convertible into or exercisable for any such voting securities, in each case for purposes of any 401(k) or similar benefit plan maintained by SANOFI-AVENTIS or its Affiliates for its or their employees, provided that such voting securities shall not, in the aggregate, exceed 5% of the voting power of MERRIMACK's outstanding securities, and provided that SANOFI-AVENTIS and its Affiliates will not in any way request or direct that the trustee or other administrator of any plan acquire any voting securities of MERRIMACK.

(c) For the purposes of this Section 16.3, the term "Standstill Period" shall mean the period commencing on the Effective Date and ending on the later to occur of (i) the [**] anniversary of the Effective Date or (ii) the [**] anniversary of the closing of the initial public offering of MERRIMACK's common stock.

(d) Notwithstanding anything to the contrary in this Section 16.3, if (i) MERRIMACK publicly engages in a process to solicit offers relating to transactions which, if consummated, would result in a merger, consolidation, sale or other business combination transaction pursuant to which the stockholders of MERRIMACK immediately prior to consummation of such merger, consolidation or other business combination would own less than [**]% of the outstanding common stock of MERRIMACK or other surviving entity immediately following consummation (but only so long as such process continues), or (ii) MERRIMACK executes a definitive agreement with a Third Party providing for an acquisition (by way of merger, tender offer, exchange offer or otherwise) of [**]% or more of MERRIMACK's outstanding capital stock or all or substantially all of MERRIMACK's assets (but only so long as such agreement is not terminated and does not expire), or (iii) a person or 13D Group (i.e. a group within the meaning of Section 13(d)(3) of the Exchange Act) not including SANOFI-AVENTIS or its Affiliates commences, or publicly announces its intent to commence and actually commences within five (5) Business Days after such public announcement, a tender or

exchange offer for voting securities representing [**]% or more of the then outstanding voting power of the voting securities of MERRIMACK (but only so long as such offer is not terminated or withdrawn or does not expire without being consummated), then the provisions of this Section 16.3 shall immediately cease to be of any effect and SANOFI-AVENTIS and its Affiliates shall immediately be released from any obligations under this Section 16.3.

Section 16.4 Entire Agreement; Amendments. This Agreement constitutes the entire agreement between the Parties with respect to the subject matter hereof, and supersedes all previous arrangements with respect to the subject matter hereof, whether written or oral, including the Confidentiality Agreement. Any amendment or modification to this Agreement shall be made in writing signed by both Parties.

Section 16.5 Notices. Any notice required or provided for by the terms of this Agreement shall be in writing and shall be sufficient if (a) delivered personally or (b) sent by registered or certified mail, return receipt requested, or reputable overnight business courier, in each case properly addressed to a Party as set forth below. The effective date of notice shall be the actual date of receipt by the Party receiving the same.

Notices to MERRIMACK shall be addressed to:

Merrimack Pharmaceuticals, Inc.
One Kendall Square
Suite B7201
Cambridge, MA 02139-1670
U.S.A.

Attention: Chief Executive Officer

with a copy to:

Wilmer Cutler Pickering Hale and Dorr LLP
60 State Street
Boston, Massachusetts 02109
U.S.A.

Attention: David E. Redlick, Esq. and
Steven D. Barrett, Esq.

Notices to SANOFI-AVENTIS shall be addressed to:

SANOFI-AVENTIS
174 avenue de France
75013 Paris
France

Attention: Legal Operations

with a copy to:

SANOFI-AVENTIS
174 avenue de France
75013 Paris
France

Attention: License Administration

Any Party may change its notification address by giving notice to the other Party in the manner herein provided. For clarity, the additional copy will be addressed for convenience only and the notification shall be deemed to have been validly delivered when addressed to the main addressee.

Section 16.6 Exports. The Parties acknowledge that the export of technical data, materials or products is subject to the exporting Party receiving any necessary export licenses and that the Parties cannot be responsible for any delays attributable to export controls that are beyond the reasonable control of either Party. SANOFI-AVENTIS and MERRIMACK agree not to export or reexport, directly or indirectly, any Collaboration Compound or Licensed Product (or any associated products, information, items, articles, computer software, media, technical data, the direct product of such data, samples or equipment received or generated under this Agreement) in violation of any US export laws or other Laws or regulations that may be applicable. SANOFI-AVENTIS and MERRIMACK agree to obtain similar covenants from their Affiliates, sublicensees and contractors with respect to the subject matter of this Section.

Section 16.7 Force Majeure. Either Party shall be excused from the performance of its obligations under the Agreement, and no failure or omission by a Party in the performance of any obligation of this Agreement shall be deemed a breach of this Agreement or create any liability if the same shall arise from any cause or causes beyond the control of such Party, (including the following: acts of God; acts or omissions of any government; any rules, regulations or orders issued by any governmental authority or by any officer, department, agency or instrumentality thereof; labor disputes, epidemic, failure or default of public utilities or common carriers, fire; storm; flood; earthquake; accident; war; rebellion; terrorism; insurrection; riot; and invasion) and such excuse shall be continued so long as the condition constituting force majeure continues; provided that such failure or omission resulting from one of the above causes is cured as soon as is practicable after the end of the occurrence of one or more of the above-mentioned causes. The Party claiming such force majeure shall notify the other Party with notice of the force majeure event as soon as practicable, but in no event longer than five (5) Business Days after its occurrence, which notice shall reasonably identify the affected obligations under this Agreement and the extent to which performance thereof will be affected. In such event, the Parties shall meet and/or discuss promptly to determine an equitable solution to minimize and if reasonably feasible, overcome, the effects of any such event.

Section 16.8 Performance by Affiliates and Sublicensees. To the extent that this Agreement imposes obligations on Affiliates or sublicensees of a Party, such Party agrees to cause such Party's Affiliates and sublicensees to perform such obligations.

Section 16.9 Independent Contractors. It is understood and agreed that the relationship between the Parties hereunder is that of independent contractors and that nothing in this Agreement shall be construed as authorization for either MERRIMACK or SANOFI-AVENTIS to act for, bind or commit the other in any way. The Alliance Managers shall remain employees of SANOFI-AVENTIS or MERRIMACK, as the case may be.

Section 16.10 Construction. Each Party agrees that this Agreement shall be interpreted without regard to any presumption or rule requiring construction against the Party causing this Agreement to be drafted.

Section 16.11 Interpretation. Any reference in this Agreement to an Article, Section, subsection, paragraph, clause, Schedule, or Exhibit shall be deemed to be a reference to any Article, Section, subsection, paragraph, clause, Schedule, or Exhibit, of or to, as the case may be, this Agreement. Except where the context clearly otherwise requires, (a) wherever used, the use of any gender will be applicable to all genders, (b) any definition of or reference to any agreement, instrument or other document refers to such agreement, instrument other document as from time to time amended, supplemented or otherwise modified (subject to any restrictions on such amendments, supplements or modifications set forth herein or therein), (c) any reference to any laws refers to such laws as from time to time enacted, repealed or amended, (d) the words "herein", "hereof" and hereunder", and words of similar import, refer to this Agreement in its entirety and not to any particular provision hereof, (e) the words "include", "includes" and "including" shall be deemed to be followed by the phrase "but not limited to", "without limitation" or words of similar import, (f) the word "day" means a calendar day, the word "month" means a calendar month and the word "year" means a calendar year, (g) the word "quarterly" refers to calendar quarters (e.g. January 1 to march 31, April 1 to June 30, July 1 to September 30 or October 1 to December 31) and (h) each accounting term used herein that is not specifically defined herein shall have the meaning given to it under applicable IFRS, to the extent consistent with its usage and the other definitions in the Agreement.

Section 16.12 Headings. The captions or headings of the Sections or other subdivisions hereof are inserted only as a matter of convenience or for reference and shall have no effect on the meaning of the provisions hereof.

Section 16.13 English Language. This Agreement was prepared and is established in the English language, any translation thereof shall be deemed for convenience only and shall never prevail against the original English version. All reports, notices and communications to be exchanged under this Agreement shall be in the English language, provided however that, notwithstanding anything herein to the contrary, neither Party shall be under any obligation to translate into English any document originally established and existing in another language, for the sole purpose of communicating such document to the other Party, it being agreed that such documents will be provided on an as is basis.

Section 16.14 No Implied Waivers; Rights Cumulative. No failure on the part of MERRIMACK or SANOFI-AVENTIS to exercise, and no delay in exercising, any right, power, remedy or privilege under this Agreement, or provided by statute or at law or in equity or otherwise, shall impair,

prejudice or constitute a waiver of any such right, power, remedy or privilege or be construed as a waiver of any breach of this Agreement or as an acquiescence

therein, nor shall any single or partial exercise of any such right, power, remedy or privilege preclude any other or further exercise thereof or the exercise of any other right, power, remedy or privilege.

Section 16.15 Severability. If, under applicable Law, any provision of this Agreement is held to be invalid or unenforceable, or otherwise directly or indirectly affects the validity of any other material provision(s) of this Agreement (such invalid or unenforceable provision, a "Severed Clause"), this Agreement shall endure except for the Severed Clause. The Parties shall consult one another and use reasonable efforts to agree upon a valid and enforceable provision that is a reasonable substitute for the Severed Clause in view of the objectives contemplated by the Parties when entering into the Agreement and the general balance of the respective interests of the Parties as initially intended under the Agreement.

Section 16.16 Execution in Counterparts. This Agreement may be executed in counterparts, each of which counterparts, when so executed and delivered, shall be deemed to be an original, and all of which counterparts, taken together, shall constitute one and the same instrument.

[*Remainder of This Page Intentionally Left Blank*]

IN WITNESS WHEREOF, the Parties have executed this License and Collaboration Agreement as of the Execution Date.

SANOFI-AVENTIS

By: /s/ Laurence Debroux
Name: Laurence Debroux
Title: Senior Vice-President, Chief Strategic Officer

By: /s/ Jean-Luc Renard
Name: Jean-Luc Renard
Title: Vice President Corporate Accounting

MERRIMACK PHARMACEUTICALS, INC.

By: /s/ Robert J. Mulroy
Name: Robert J. Mulroy
Title: President & CEO

Exhibit A-1

Diagnostic Patent Rights

(Controlled by MERRIMACK)

Merrimack Ref. No.	Country	Title of Invention	Application No.	Filing Date	Status
Diagnostic					
[**]	[**]	[**]	[**]	[**]	[**]

Diagnostic Patent Rights also include the Licensed Patent Rights (as defined in the PHS Agreement), the [**] Patent Rights and the Dyax Patent Rights (each as defined in the Dyax Collaboration Agreement), in each case to the extent licensed to Merrimack under the applicable Existing Third Party Licenses.

Exhibit A-2

Therapeutic Patent Rights

(Controlled by MERRIMACK)

Merrimack Ref. No.	Country	Title of Invention	Application No.	Filing Date	Status
Therapeutic					
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]

[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]

Merrimack Ref. No.	Country	Title of Invention	Application No.	Filing Date	Status
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]	[**]
[**]					

Therapeutic Patent Rights also include the Selexis Patent Rights (as defined in the Selexis License Agreement), the Licensed Patent Rights (as defined in the PHS Agreement), the [**] Patent Rights and the Dyax Patent Rights (each as defined in the Dyax Collaboration Agreement), in each case to the extent licensed to Merrimack under the applicable Existing Third Party Licenses.

Exhibit A-3

Licensed Technology

(Controlled by MERRIMACK)

The following is a general summary of Licensed Technology existing as of the Execution Date:

[**]

Exhibit B

Listed Third Party Patents

[**]

Patent/ Publication No.	Date
[**]	[**]
[**]	[**]
[**]	[**]
[**]	[**]
[**]	[**]

[**]

Patent/ Publication No.	Date
[**]	[**]
[**]	[**]

Exhibit C

Description of MM-121

MM-121 is a fully human monoclonal IgG2 antibody targeting ErbB3. MM-121 has the amino acid sequence given below:

Heavy Chain aa SEQ:
[**]

Light chain aa SEQ:
[**]

Exhibit D

Co-Promotion Guidelines

1. The total detailing effort for each Co-Promoted Product will be allocated between the Parties as follows: [**] percent ([**]%) to SANOFI-AVENTIS and [**] percent [**]%) to MERRIMACK.

2. The number and position of details and categories of professionals or institutions to be targeted, and the allocation of such professionals or institutions between the Parties, with respect to each Co-Promoted Product, shall be determined in an equitable manner that seeks to ensure that each Party is allocated a distribution of details that is equally attractive in terms of geography, prescription volumes of target prescribers and/or other commercial factors.

3. Policies and procedures relating to product sampling, once established by mutual agreement of the Parties, may not be amended other than by mutual agreement of the Parties.

Exhibit E

Certain Requirements under PHS Agreement

4.2 **Licensee** agrees that any sublicenses granted by it shall provide that the obligations to PHS of Paragraphs 8.1, 10.1, 10.2, 12.5, and 13.7-13.9 of this **Agreement** shall be binding upon the **Sublicensee** as if it were a party to this **Agreement**. **Licensee** further agrees to attach copies of these Paragraphs to all sublicense agreements.

4.3 Any sublicenses granted by **Licensee** shall provide for the termination of the sublicense, or the conversion to a license directly between the **Sublicensees** and PHS, at the option of the **Sublicensee**, upon termination of this Agreement under Article 13. This conversion is subject to PHS approval and contingent upon acceptance by the **Sublicensee** of the remaining provisions of this **Agreement**.

5.1 Prior to the **First Commercial Sale**, **Licensee** agrees to provide PHS, upon PHS request and subject to availability, with reasonable quantities of **Licensed Products** or materials made through the **Licensed Processes** for PHS *in vitro* research use.

5.2 **Licensee** agrees that products used or sold in the United States embodying **Licensed Products** or produced through use of **Licensed Processes** shall be manufactured substantially in the United States, unless a written waiver is obtained in advance from PHS.

8.1 **Licensee** agrees to keep accurate and correct records of **Licensed Products** made, used, sold, or imported and **Licensed Processes** practiced under this **Agreement** appropriate to determine the amount of royalties due PHS. These records shall be retained for at least [**] years following a given reporting period and shall be available during normal business hours for inspection, at the expense of PHS, by an independent accountant or other designated auditor selected by PHS for the sole purpose of verifying reports and royalty payments hereunder. The accountant or auditor shall only disclose to PHS information relating to the accuracy of reports and royalty payments made under this **Agreement**. If an inspection shows an underreporting or underpayment in excess of five percent (5%) for any [**] month period, then **Licensee** shall reimburse PHS for the cost of the inspection at the time **Licensee** pays the unreported royalties, including any additional royalties as required by Paragraph 9.8. All royalty payments required under this Paragraph shall be due within [**] days of the date PHS provides **Licensee** notice of the payment due.

9.1 Prior to signing this **Agreement**, **Licensee** has provided PHS with the **Commercial Development Plan** referred to in more detail in Appendix E, and under which **Licensee** intends to bring the subject matter of the **Licensed Patent Rights** to the point of **Practical Application**. This **Commercial Development Plan** is hereby incorporated by reference in this **Agreement**. Based on this plan, performance **Benchmarks** are determined as specified in Appendix D.

9.2 **Licensee** shall provide written reports on its product development progress or efforts to commercialize under the **Commercial Development Plan** for each of the **Licensed**

Fields of Use. These written reports are due within [**] days after December 31 of each calendar year beginning on December 31, [**]. The first written report will detail the progress made from the Effective Date of this **Agreement** through December 31, [**]. These progress reports shall include, but not be limited to: progress on research and development, status of applications for regulatory approvals, manufacturing, marketing, importing, and sales during the preceding calendar year, as well as, plans for the present calendar year. PHS also encourages these reports to **Patent Rights**. If reported progress differs from that projected in the **Commercial Development Plan** and **Benchmarks**, **Licensee** shall explain the reasons for such differences. In any annual report, **Licensee** may amend the **Benchmarks** at any time upon written approval by PHS. PHS shall not unreasonably withhold approval of any request of **Licensee** to extend the time periods of this schedule if the request is supported by a reasonable showing by **Licensee** of diligence in its performance under the **Commercial Development Plan** and toward bringing the **Licensed Products** to the point of **Practical Application**.

9.3 **Licensee** shall report to PHS the dates for achieving **Benchmarks** specified in Appendix D and the **First Commercial Sale** in each country in the **Licensed Territory** within [**] days of such occurrences.

9.4 Commencing with **First Commercial Sale**, **Licensee** shall submit to PHS, within [**] days after each calendar half-year ending June 30 and December 31, a royalty report, as described in the example in Appendix F, setting forth for the preceding half-year period the amount of the **Licensed Products** sold or **Licensed Processes** practiced by or on behalf of **Licensee** in each country within the **Licensed Territory**, the **Net Sales**, and the amount of royalty accordingly due. With each royalty report, **Licensee** shall submit payment of earned royalties due. If no earned royalties are due to PHS for any reporting period, the written report shall so state. The royalty report shall be certified as correct by an authorized officer of **Licensee** and shall include a detailed listing of all deductions made under Paragraph 2.10 to determine **Net Sales** made under Article 6 to determine royalties due.

9.5 **Licensee** agrees to forward to PHS, on a semi-annually basis, a copy of reports received by **Licensee** from its sublicensees during the preceding half-year period as shall be pertinent to a royalty accounting to PHS by **Licensee** for activities under the sublicense.

10.1 **Licensee** shall use its reasonable commercial efforts to bring the **Licensed Products** and **Licensed Processes** to **Practical Application**. "Reasonable commercial efforts" for the purposes of this provision shall include adherence to the **Commercial Development Plan** in Appendix E and performance of the **Benchmarks** in Appendix D as may be amended from time to time in accordance with the provisions of Paragraphs 9.2 and 14.4. The efforts of the **Sublicensee** will be considered the efforts of the **Licensee**.

10.2 Upon the **First Commercial Sale**, until the expiration or termination of this **Agreement, Licensee** shall use its reasonable commercial efforts to make **Licensed Products** and **Licensed Processes** reasonably accessible to the United States public.

10.3 **Licensee** agrees, after its **First Commercial Sale**, to make reasonable quantities of **Licensed Products** or materials produced through the use of **Licensed Processes** available on a compassionate use basis to patients, either through the patient's physician(s) or the medical center treating the patient.

10.4 **Licensee** agrees, after its **First Commercial Sale** and as part of its marketing and product promotion, to develop educational materials (e.g., brochures, website, etc.) directed to patients and physicians detailing the **Licensed Products** or medical aspects of the prophylactic and therapeutic uses of the **Licensed Products**.

10.5 **Licensee** agrees to supply, to the Mailing Address for Agreement Notices indicated on the Signature Page, the Office of Technology Transfer, NIH with inert samples of the **Licensed Products** or **Licensed Processes** or their packaging for educational and display purposes only.

12.5 **Licensee** shall indemnify and hold PHS, its employees, students, fellows, agents, and consultants harmless from and against all liability, demands, damages, expenses, and losses, including but not limited to death, personal injury, illness, or property damage in connection with or arising out of:

(a) the use by or on behalf of **Licensee**, its directors, employees, its **Sublicensees**, or third parties of any **Licensed Patent Rights**; or

(b) the design, manufacture, distribution, or use of any **Licensed Products, Licensed Processes** or materials by **Licensee** or its **Sublicensees**, or other products or processes developed in connection with or arising out of the **Licensed Patent Rights**.

13.7 PHS reserves the right according to 35 U.S.C. §209(d)(3) to terminate or modify this **Agreement** if it is determined that the action is necessary to meet the requirements for public use specified by federal regulations issued after the date of the license and these requirements are not reasonably satisfied by **Licensee**.

13.8 Within [**] days of receipt of written notice of PHS' unilateral decision to modify or terminate this **Agreement, Licensee** may, consistent with the provisions of 37 CFR §404.11, appeal the decision by written submission to the designated PHS official. The decision of the designated PHS official shall be the final agency decision. **Licensee** may thereafter exercise any and all administrative or judicial remedies that may be available.

13.9 Within [**] days of expiration or termination of this **Agreement** under this Article 13, a final report shall be submitted by **Licensee**. Any royalty payments, including those incurred but not yet paid (such as the full minimum annual royalty), and those related to patent expense, due to PHS shall become immediately due and payable upon termination or expiration. If terminated under this Article 13, **Sublicensees** may elect to convert their sublicenses to direct licenses with PHS pursuant to Paragraph 4.3. Unless otherwise specifically provided for under this **Agreement**, **Licensee** shall return all **Licensed Products** or materials included within the **Licensed Patent Rights** to PHS or provide PHS with written certification of the destruction thereof.

14.10 **Licensee** agrees to mark the **Licensed Products** or their packaging sold [**] with all applicable U.S. patent numbers and similarly to indicate "Patent Pending" status. All **Licensed Products** manufactured in, shipped to, or sold in other countries shall be marked in a manner to preserve PHS patent rights in those countries.

Exhibit F-1

MERRIMACK Press Release

EMBARGOED

Sanofi-aventis and Merrimack Pharmaceuticals enter into a Worldwide Collaboration and Licensing Agreement on MM-121, an anti-ErbB3 monoclonal antibody

Merrimack eligible to receive up to $530 million, comprised of $60 million upfront plus milestone payments, in addition to future royalties. Merrimack will lead MM-121 development through proof of concept and retains the right to co-promote in the United States

CAMBRIDGE, Mass., September 30, 2009 — Merrimack Pharmaceuticals, Inc. and sanofi-aventis announced today the signing of an exclusive worldwide licensing agreement for the development and co-commercialization of MM-121, a first-in-class, fully human monoclonal antibody designed to block signaling of the ErbB3 receptor. MM-121 is currently in Phase 1 clinical testing.

Under the terms of the agreement, sanofi-aventis will make an upfront payment of $60 million, and Merrimack is eligible for an additional $470 million in milestone payments as well as tiered double-digit royalties on sales of MM-121. Merrimack will be responsible for development of MM-121 through Phase 2 proof of concept for each indication and sanofi-aventis will be responsible for development thereafter. Merrimack retains the right to co-promote the therapy in the United States.

"Merrimack's expertise in the ErbB pathway along with their knowledge of biologics development has allowed them to successfully identify ErbB3 as a promising target and rapidly bring MM-121 into the clinic," stated Chris Viehbacher, Chief Executive Officer of sanofi-aventis. "We are excited to collaborate with Merrimack on the development of MM-121 which we believe addresses a significant gap in treating cancer patients."

The ErbB3 receptor is a novel target known to be a key mediator of signaling in the ErbB pathway (also known as the EGFR or HER pathway) — a signaling network that impacts a broad array of cancers. By targeting ErbB3, MM-121 is believed to have a broad application across cancer as both a monotherapy and in combination with other therapeutics. Research data has also shown that ErbB3 may also play a central role in resistance to both targeted therapies and chemotherapy in a number of tumor types.

"We believe that MM-121 has the potential to serve as an important new treatment for multiple forms of cancer," said Robert Mulroy, President and Chief Executive Officer of Merrimack. "We are pleased to partner with sanofi-aventis, a premier, global pharmaceutical company with broad oncology expertise. Together, we hope to work with the international research community to accelerate the development of MM-121 for the benefit of patients."

Merrimack developed MM-121 after identifying the importance of ErbB3 through its Network Biology approach, a fully integrated drug discovery and development technique that combines biology, engineering, and computational modeling to better understand the underlying complexity of disease pathways. The information derived from Network Biology informs the strategic decisions guiding early pharmaceutical discovery as well as helping to advance candidates through pre-clinical, clinical development and towards commercialization.

The effectiveness of the license and collaboration is subject to antitrust clearance under the Hart-Scott-Rodino Antitrust Improvements Act and other customary regulatory approvals.

About Merrimack

Merrimack Pharmaceuticals, Inc. is a biotechnology company focused on the discovery and development of novel treatments for cancer and autoimmune disease. Its first two oncology pipeline candidates, MM-121 and MM-111 are currently in Phase 1 clinical development. The Company's proprietary Network Biology discovery platform, developed with the help of leading scientists from MIT and Harvard, enables the high-throughput profiling of protein networks as a basis for improved validation, lead identification and speed in the development of innovative, effective and well tolerated therapeutics. MM-121 and MM-111 are investigational drugs and have not been approved by the U.S. Food and Drug Administration or any international regulatory agency. Merrimack is a privately-held company based in Cambridge, Massachusetts.

Contact: Kathleen Petrozzelli, Corporate Communications, 617-441-1043, kpetrozzelli@merrimackpharma.com, http://www.merrimackpharma.com
Betsy Stevenson, RaymondStevenson Healthcare, 860-984-1424, betsy@raymondstevenson.com

About sanofi-aventis

Sanofi-aventis, a leading global pharmaceutical company, discovers, develops and distributes therapeutic solutions to improve the lives of everyone. Sanofi-aventis is listed in Paris (EURONEXT: SAN) and in New York (NYSE: SNY).

Forward Looking Statements

This press release contains forward-looking statements as defined in the Private Securities Litigation Reform Act of 1995, as amended. Forward-looking statements are statements that are not historical facts. These statements include product development, product potential projections and estimates and their underlying assumptions, statements regarding plans, objectives, intentions and expectations with respect to future events, operations, products and services,

and statements regarding future performance. Forward-looking statements are generally identified by the words "expects," "anticipates," "believes," "intends," "estimates," "plans" and similar expressions. Although sanofi-aventis' management believes that the expectations reflected in such forward-looking statements are reasonable, investors are cautioned that forward-looking information and statements are subject to various risks and uncertainties, many of which are difficult to predict and generally beyond the control of sanofi-aventis, that could cause actual results and developments to differ materially from those expressed in, or implied or projected by, the forward-looking information and statements. These risks and uncertainties include among other things, the uncertainties inherent in research and development, future clinical data and analysis, including post marketing, decisions by regulatory authorities, such as the FDA or the EMEA, regarding whether and when to approve any drug, device or biological application that may be filed for any such product candidates as well as their decisions regarding labelling and other matters that could affect the availability or commercial potential of such products candidates, the absence of guarantee that the products candidates if approved will be commercially successful, the future approval and commercial success of therapeutic alternatives as well as those discussed or identified in the public filings with the SEC and the AMF made by sanofi-aventis, including those listed under "Risk Factors" and "Cautionary Statement Regarding Forward-Looking Statements" in sanofi-aventis' annual report on Form 20-F for the year ended December 31, 2008. Other than as required by applicable law, sanofi-aventis does not undertake any obligation to update or revise any forward-looking information or statements.

Exhibit F-2

SANOFI-AVENTIS Press Release

Sanofi-aventis and U.S. Biotechnology company Merrimack enter into an Exclusive Global Collaboration and Licensing Agreement for a monoclonal antibody in Oncology

Paris, France — September 30, 2009 — Sanofi-aventis (EURONEXT: SAN and NYSE: SNY) and Merrimack Pharmaceuticals, Inc. announced today an exclusive global collaboration and licensing agreement on MM-121, a first-in-class, fully human monoclonal antibody designed to block signaling of the ErbB3 (also known as HER3) receptor, for the management of solid malignancies. MM-121 is currently in Phase 1 clinical testing.

Under this agreement, sanofi-aventis will receive an exclusive worldwide license to develop, manufacture and commercialize MM-121. Merrimack will retain potential co-promotion rights in the United States.

"*This agreement illustrates sanofi-aventis' continuous involvement to access innovative biological compounds through high-value partnerships"* declared Marc Cluzel Senior Vice-President R&D,
sanofi-aventis. "*MM-121 is a pioneering monoclonal antibody which has the potential to prolong the life of patients suffering from cancer and which constitutes a strong addition to our biopharmaceutical portfolio. It further demonstrates sanofi-aventis' strong commitment to innovation as it strengthens our position as a key player in biotechnologies"*.

Under the terms of the agreement, sanofi-aventis agreed to pay Merrimack an upfront cash payment of $60M for the research, development, manufacturing and commercialization rights. Merrimack is eligible for development and regulatory milestone payments up to $410M on MM-121, royalties on the worldwide product sales and will receive additional performance milestones of up to $60M on worldwide sales. Merrimack will participate in the development of MM-121.

The license agreement is subject to antitrust clearance under the *Hart-Scott-Rodino Antitrust Improvements Act*.

About MM-121

MM-121 is a monoclonal antibody designed to block signaling of the ErbB3 receptor, a member of the epidermal growth factor (EGF) receptor family (also known as ErbB family) which plays a crucial role in the development and evolution of cancer. MM-121 is the first selective ErbB3 antagonist to have entered human clinical development. Preclinical data demonstrating MM-121's impact on multiple cancer models (including lung, ovarian, breast, prostate and renal) were presented at the annual meeting of the American Association for Cancer Research in April 2008. The Phase 1 trial is being conducted at 3 clinical centers in the United States.

About ErbB3

ErbB3 (also known as HER3) is a transmembrane receptor belonging to the epidermal growth factor (EGF) receptor family. While ErbB3 lacks innate tyrosine kinase function, it exerts its signalling activity through heterodimerization (pairing) with the other ErbB receptors. Notably due to its recently established link to the phosphoinositide-3 kinase (PI3K) pathway, ErbB3 is emerging as a key oncology target. ErbB3 and its ligands are expressed and often upregulated in different solid tumors (breast, ovarian…) and are associated with metastasis formation and decrease in survival. Importantly, ErbB3 is also involved in the mechanism of resistance to certain treatments such as gefinitib in lung cancer, cetuximab in colon and head & neck cancer, and trastuzumab in breast cancer.

About Merrimack

Merrimack Pharmaceuticals, Inc. is a biotechnology company focused on the discovery and development of novel treatments for cancer and autoimmune disease. Its first two oncology pipeline candidates, MM-121 and MM-111 are currently in Phase 1 clinical development. The Company's proprietary Network Biology discovery platform, developed with the help of leading scientists from MIT and Harvard, enables the high-throughput profiling of protein networks as a basis for improved validation, lead identification and speed in the development of innovative, effective and well tolerated therapeutics. MM-121 and MM-111 are investigational drugs and have not been approved by the U.S. Food and Drug Administration or any international regulatory agency. Merrimack is a privately-held company based in Cambridge, Massachusetts.

About sanofi-aventis

Sanofi-aventis, a leading global pharmaceutical company, discovers, develops and distributes therapeutic solutions to improve the lives of everyone. Sanofi-aventis is listed in Paris (EURONEXT: SAN) and in New York (NYSE: SNY).

Forward Looking Statements

This press release contains forward-looking statements as defined in the Private Securities Litigation Reform Act of 1995, as amended. Forward-looking statements are statements that are not historical facts. These statements include product development, product potential projections and estimates and their underlying assumptions, statements regarding plans, objectives, intentions and expectations with respect to future events, operations, products and services, and statements regarding future performance. Forward-looking

statements are generally identified by the words "expects," "anticipates," "believes," "intends," "estimates," "plans" and similar expressions. Although sanofi-aventis' management believes that the expectations reflected in such forward-looking statements are reasonable, investors are cautioned that forward-looking information and statements are subject to various risks and uncertainties, many of which are difficult to predict and generally beyond the control of sanofi-aventis, that could cause actual results and developments to differ materially from those expressed in, or implied or projected by, the forward-looking information and statements. These risks and uncertainties include among other things, the uncertainties inherent in research and development, future clinical data and analysis, including post marketing, decisions by regulatory authorities, such as the FDA or the EMEA, regarding whether and when to approve any drug, device or biological application that may be filed for any such product candidates as well as their decisions regarding labelling and other matters that could affect the availability or commercial potential of such products candidates, the absence of guarantee that the products candidates if approved will be commercially successful, the future approval and commercial success of therapeutic alternatives as well as those discussed or identified in the public filings with the SEC and the AMF made by sanofi-aventis, including those listed under "Risk Factors" and "Cautionary Statement Regarding Forward-Looking Statements" in sanofi-aventis' annual report on Form 20-F for the year ended December 31, 2008. Other than as required by applicable law, sanofi-aventis does not undertake any obligation to update or revise any forward-looking information or statements.

Exhibit G

Required MERRIMACK Patent Filing Countries

[**]

FIRST AMENDMENT TO LICENSE AGREEMENT BETWEEN LICENSE AND COLLABORATION AGREEMENT By and Between SANOFI-AVENTIS and MERRIMACK PHARMACEUTICALS, INC.

This First Amendment ("First Amendment") to is made and effective this 18th day of February, 2011 ("Amendment Effective Date") by and between SANOFI-AVENTIS, a French corporation with its principal offices at 174 avenue de France, 75013 Paris, France ("SANOFI-AVENTIS"), and MERRIMACK PHARMACEUTICALS, INC., a Delaware corporation with its principal offices at One Kendall Square, Suite B7201, Cambridge, MA 02139-1670, U.S.A. ("MERRIMACK"). Capitalized terms used herein and not defined herein shall have the meanings ascribed to them in the Agreement (as defined below).

BACKGROUND

WHEREAS, SANOFI-AVENTIS and MERRIMACK entered into a License and Collaboration Agreement ("Agreement") effective September 30, 2009 for the collaboration in the development and commercialization of products comprised of MM-121 and potentially other monoclonal antibodies targeting ErbB3 on the terms and conditions set forth in the Agreement;

WHEREAS, in order to maintain the pace of clinical development detailed in the Global Development Plan, Merrimack has been asked to produce significantly more than the [**] of drug product specified in Section 3.4(b)(i) of the Agreement;

WHEREAS, SANOFI-AVENTIS and MERRIMACK previously discussed revised payment terms for the manufacture of MM-121, including during the meeting of the Joint Project Team held on July 1, 2010 and the meeting of the Joint Steering Committee held on October 6, 2010; and

WHEREAS, SANOFI-AVENTIS and MERRIMACK wish to amend the Agreement as provided herein in order to formally document these payment terms related the manufacture of MM-121 by MERRIMACK for purposes outlined in the Global Development Plan and to enable the continuation of these terms beyond 2010.

NOW, THEREFORE, in view of the foregoing, the Parties hereby agree as follows:

1. Section 3.4(c) of the Agreement is deleted in its entirety and replaced with the following:

(c) SANOFI-AVENTIS shall pay MERRIMACK for all Manufacturing Costs incurred by MERRIMACK, even if incurred prior to the Effective Date, for providing clinical supply of MM-121 to SANOFI-AVENTIS hereunder. Such payment will take place either (A) for all such material delivered on or

before October 1, 2010, within [**] days following delivery of such supply and MERRIMACK's invoice therefor, or (B) for all such material delivered after October 1, 2010, in [**] installments, each due within [**] days following MERRIMACK's invoice therefor, as follows: [**] of MERRIMACK's estimate of [**] for the applicable [**] upon [**] of MERRIMACK's estimate of all [**] for the applicable [**] upon MERRIMACK's [**] of at least [**] percent ([**]%) of the [**] in such campaign (for clarity, the determination of [**]% of the [**] in such campaign will be based upon [**] the [**]

(calculated as the actual [**]) within [**] days of such supply. It is understood that such costs (if previously paid by SANOFI-AVENTIS) shall be reimbursed by MERRIMACK in case of non-conformity of MM-121 to the applicable specifications, pursuant to Section 3.4(b)(iii) above.

2. As amended hereby, the Agreement remains in full force and effect.

IN WITNESS WHEREOF, the Parties have executed this First Amendment by their respective and duly authorized officers, as evidenced by their signatures below.

SANOFI-AVENTIS

By: /s/ Philippe Goupit
Name: Philippe Goupit
Title: VP Business Development and Licensing

MERRIMACK PHARMACEUTICALS, INC.

By: /s/ Robert J. Mulroy
Name: Robert J. Mulroy
Title: President & CEO

Exhibit 10.19

Confidential Materials omitted and filed separately with the

Securities and Exchange Commission. Asterisks denote omissions.

Execution Version

COMMERCIAL LICENSE AGREEMENT

ENTERED INTO WITH

Merrimack Pharmaceuticals, Inc.

Merrimack
Selexis SA

CONFIDENTIAL

This Commercial License Agreement (the "Agreement") is made effective on June 6, 2008 (the "Effective Date"),

by and between

Selexis SA, 18 ch. des Aulx, 1228 Plan-les-Ouates, Geneva, Switzerland SA ("**Selexis**")

and

Merrimack Pharmaceuticals, Inc., One Kendall Square, Building 700, 2nd Fl, Cambridge, MA, 02139 ("**Merrimack**").

BACKGROUND

Whereas, **Merrimack** is a biopharmaceutical company engaged in the research, development, manufacturing and sale of biopharmaceutical products; and

Whereas, **Selexis** is a biotechnology company engaged in the development and sale of recombinant cell lines based on proprietary technology ("**Selexis** Technology", as defined further below); and

Whereas, **Selexis** is the owner of certain proprietary and confidential information and know-how ("**Selexis** Know-How", as defined further below), and intellectual property ("**Selexis** Patent Rights", as defined further below); and

Whereas, **Selexis** is willing to grant **Merrimack**, and **Merrimack** is willing to receive from **Selexis**, **Selexis** Know-How and **Selexis** Patent Rights and licenses thereto related to the **Selexis** Technology, on the terms and conditions set forth herein.

AGREEMENT

Now, therefore, the Parties, intending to be legally bound hereby, do hereby agree as follows:

1 Definitions

The following capitalized terms, whether used in the singular or the plural, shall have the following meanings as used in this Agreement, unless otherwise specifically indicated:

1.1. "Affiliate" shall mean any Person that, directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with the Party specified. For the purposes of this definition, "control" shall mean the possession, direct or indirect, of the power to cause the direction of the management and policies of a Person, whether through ownership of fifty percent (50%) or more of the voting securities of such Person, by contract or otherwise. A Person shall only be considered an Affiliate for so long as such control exists.

1.2. “Agreement” shall mean as defined on Page 2, 1st paragraph.

1.3. “Calendar Quarter” shall mean for each Calendar Year, each of the three month periods ending March 31, June 30, September 30 and December 31.

1.4. “Calendar Year” shall mean the period commencing on January 1 and ending twelve (12) consecutive calendar months later on December 31.

1.5. “Cell Line” shall mean a mammalian cell line that is developed using the **Selexis** Technology.

1.6. “Clinical Trials” shall mean human studies designed to measure the safety and/or efficacy of the Product. Clinical Trials include Phase I Clinical Trials, Phase II Clinical Trials, and Phase III Clinical Trials.

1.7. “Collaboration Partner” shall mean a Third Party with which **Merrimack** collaborates on the development of the production process and/or commercialization of a Product or to which **Merrimack** has granted a license for the development of the production process and/or commercialization of a Product.

1.8. “Combination Product” shall mean a therapeutic composed of at least two components in which at least one component of the therapeutic is a Product and the other component is any other active ingredient, device or component.

1.9. “Combination Product Adjustment” shall mean the following:

1.9.1. If, on a country-by-country basis, the Product is sold as part of a Combination Product, in addition to being sold separately and the other component(s) are also sold separately, then the Net Sales for such Combination Product will be adjusted by multiplying actual Net Sales of such

Combination Product by the fraction A/B where A is the average invoice price of the Licensed Product, when sold separately, and B is the sum of the average invoice price of any other active ingredient(s), device(s), or component(s) in the Combination Product, when sold separately.

1.9.2. If, on a country-by-country basis, any of the Product or any of the other active ingredient(s), device(s) or component(s) of the Combination Product is not sold separately, Net Sales for such Combination Product shall be determined by the Parties in good faith based on the proportional value added to the Product by such Licensed Product and such other active ingredient(s), device(s) and other component(s).

In the event of any dispute between the Parties regarding the determination of any Combination Product Adjustment, such dispute shall be resolved in accordance with Sections 9.4 and 9.8 of this Agreement; provided that, in any arbitration of such dispute pursuant to Section 9.8, the arbitrator designated to conduct the arbitration shall be a person with business expertise in the commercialization of pharmaceutical products.

1.10. “Commercial License” shall mean as defined in Section 2.1.

1.11. “Confidential Information” shall mean, subject to Section 8.2, information of one Party communicated to the other Party that, if written, is marked “confidential” by the providing Party or, if oral, is reduced to writing and marked “confidential” by the providing Party, and delivered to the receiving Party, within [**] days of the oral disclosure, under, or as a result of or in connection with, this Agreement.

1.12. “Contract Manufacturing Organization” shall mean an entity at least fifty percent (50%) of the business of which is directed toward the commercial production of recombinant proteins pursuant to contract manufacturing and supply agreements.

1.13. “Contractor” shall mean a Third Party contractor who: (i) develops the production process for Products or (ii) manufactures and supplies Products by using such production process.

1.14. “Default” shall mean as defined in Section 7.2.

1.15. “Defaulting Party” shall mean as defined in Section 7.2.

1.16. “Effective Date” shall have the meaning as given on Page 2, 1st paragraph.

1.17. “FDA” shall mean the United States Food and Drug Administration, or any successor agency.

1.18. “First Commercial Sale” shall mean, with respect to any Product in any country, the first sale of such Product for use or consumption by the general public in such country after Regulatory Approval as well as Pricing and Reimbursement Approval for such Product has been obtained in such country. For the avoidance of doubt, sales prior to receipt of all Regulatory Approvals and Pricing and Reimbursement

Approvals necessary to commence regular commercial sales, such as so-called “treatment IND sales”, “named patient sales” and “compassionate use sales”, shall not be construed as a First Commercial Sale.

1.19. “Force Majeure” shall mean any occurrence beyond the reasonable control of a Party that prevents or substantially interferes with the performance by the Party of any of its obligations hereunder.

1.20. "**Merrimack**" shall mean as defined on Page 2, 1st paragraph.

1.21. "IND" shall mean an Investigational New Drug Application for the Product filed with the FDA pursuant to 21 C.F.R. Part 312, or any comparable filing made with a Regulatory Authority in another country (including the submission to a competent authority of a request for an authorisation concerning a clinical trial, as envisaged in Article 9, paragraph 2, of European Directive 2001/20/EC).

1.22. "Invention" shall mean any invention, idea, innovation, enhancement, improvement or feature, whether or not patentable or registrable, together with any intellectual property rights relating thereto (including without limitation Patent Rights and rights in confidentiality and proprietary information).

1.23. "Know-How" shall mean information in whatever form, including in any electronic, tangible or intangible medium, and includes information and materials relating to Inventions and other know-how, trade secrets, data (including amongst other things all data from pre-clinical and clinical studies and other studies intended for regulatory submission), results, formulae, DNA and amino acid sequence information and developments.

1.24. "Licensed Field of Use shall mean the development, manufacture and sale of Products for any field of use.

1.25. "Licensed Products" shall mean any pharmaceutical preparation containing **Selexis** Materials, produced using any Cell Line or covered by Valid Claims.

1.26. "Losses" shall mean Losses as defined in Section 6.1.

1.27. "Net Sales" shall mean the amount collected by **Merrimack**, its Affiliates and/or its sublicensees on account of sales of Product to Third Parties in the Territory, less the following deductions:

1.27.1. sales and excise taxes and duties paid or allowed by the selling party and any other governmental charges imposed upon the production, importation, use or sale of the Products;

1.27.2. customary trade, quantity and cash discounts allowed on Products;

1.27.3. compulsory government discounts and rebates and discounts and rebates actually granted, paid or credited to any governmental agency or any third party payor, administrator or contractee,

1.27.4. refunds, chargebacks and any other allowances or credits to customers on account of rejection or return of Product or on account of retroactive price reductions affecting the Product;

1.27.5. freight and insurance costs, if they are included in the selling price for the product invoiced to Third Parties, provided always that such deduction shall not be greater than the balance between the selling price actually invoiced to the Third Party and the standard selling price which would have been charged to such Third Party for such Product exclusive of freight and insurance in the respective country or in a comparable country; and

1.27.6. fees paid to wholesalers in consideration for inventory management agreements relating to the Product.

1.27.7. In the event that Products are sold in any country in the form of a Combination Product containing one or more other therapeutically active ingredient(s), device(s), or component(s) the Net Sales for any such product shall be computed pursuant to the Combination Product Adjustment.

1.28. "Non-Defaulting Party" shall have the meaning as given in Section 7.2.

1.29. "Notice of Default" shall have the meaning as given in Section 7.2.

1.30. "Party" shall mean **Selexis** or **Merrimack**, as the case may be; and "Parties" shall mean **Selexis** and **Merrimack**, collectively.

1.31. "Patent Rights" shall mean any and all of the following: (i) patent applications (including provisional patent applications) and patents (including the inventor's certificates); (ii) any substitution, extension (including patent term extensions and supplementary protection certificate), registration, confirmation, reissue, continuation, divisional, continuation-in-part, re-examination, renewal, patent of addition or the like thereof or thereto; (iii) any foreign counterparts of any of the foregoing; and (iv) any utility model applications and utility models (whether or not corresponding to any of the foregoing).

1.32. "Person" shall mean an individual, a partnership, a joint venture, a corporation, a limited liability company, a trust, an estate, an unincorporated organization, or any other entity, or a government or any department or agency thereof, whether acting in an individual, fiduciary or other capacity.

1.33. "Phase I Clinical Trial" shall mean a clinical trial conducted in humans which is principally intended to obtain data on the safety, tolerability, pharmacokinetic or pharmacodynamic properties of a product. Phase I shall be deemed to have commenced when the first patient in the study has been treated. Phase I shall be deemed to have completed when the last patient has completed his or her treatment being investigated by that clinical trial as described in its protocol, the database is locked, and data from all patients, according to protocol, has been analyzed for the primary endpoint.

1.34. "Phase II Clinical Trial" shall mean a clinical trial conducted in humans in which the primary objective is a preliminary determination of therapeutic efficiency and/or to find an optimal dose range in patients with the disease target being studied. Phase II shall be deemed to have commenced when the first patient in the study has been treated. Phase II shall be deemed to have completed when the last patient has completed his or her treatment

being investigated by that clinical trial as described in its protocol, the database is locked, and data from all patients, according to protocol, has been analyzed for the primary endpoint.

1.35. "Phase III Clinical Trial" shall mean a clinical trial conducted in humans in which the primary objective is a determination of therapeutic efficiency in patients with the disease target being studied. Phase III shall be deemed to have commenced when the first patient in the study has been treated. Phase III shall be deemed to have completed when the last patient has completed his or her treatment being investigated by that clinical trial as described in its protocol, the database is locked, and data from all patients, according to protocol, has been analyzed for the primary endpoint.

1.36. "Pricing and Reimbursement Approval" shall mean any approvals, licences, registrations or authorisations of any supranational, national, regional, state or local Regulatory Authority or other regulatory agency, department, bureau or governmental entity, necessary to determine or set the pricing of a Product, and/or its reimbursement level by the relevant health authorities, providers or other funding institutions, at supranational, national, regional, state or local level.

1.37. "Product" shall mean any pharmaceutical preparation in final form containing any Licensed Products for sale by prescription, over-the-counter or any other method, in any dosage form, formulation, presentation, line extension or package configurations, including such Product in development where the context so requires in this Agreement.

1.38. "Regulatory Approval" shall mean any approvals, licences, registrations or authorisations of any supranational, national, regional, state or local Regulatory Authority or other regulatory agency, department, bureau or governmental entity, necessary for the manufacture, marketing or sale of the Product or conduct of clinical trials in a regulatory jurisdiction, excluding Pricing and Reimbursement Approval.

1.39. "Regulatory Authority" shall mean (i) the FDA or (ii) any and all governmental or supranational agencies, ministries, authorities or other bodies with similar regulatory authority with respect to approval or registration of pharmaceutical or biologic products in any other jurisdiction anywhere in the world.

1.40. "Royalty Term" means with respect to each Product sold in a particular country, the period beginning on the date of First Commercial Sale in such country and terminating on the expiration of the last-to-expire or lapse of any Valid Claims covering the Product in such country.

1.41. "**Selexis**" shall have the meaning as given on Page 2, 1st paragraph.

1.42. "**Selexis** Know-How" shall mean **Selexis**' Confidential Information and Know-How relating to the construction and development of recombinant cell lines for the manufacture of biopharmaceutical products and existing as of the Effective Date or obtained thereafter during the term of this Agreement.

1.43. "**Selexis** Materials" shall mean the materials provided by **Selexis** to **Merrimack** under this Agreement and all modifications and improvements thereof made by **Selexis** during the term hereof.

1.44. "**Selexis** Patent Rights" shall mean Patent Rights that: (i) are owned or controlled by **Selexis** or any of its Affiliates, (ii) which cover **Selexis** Know-How, **Selexis** Materials or any Cell Line or are necessary or useful for the use of **Selexis** Know-How, the use of **Selexis** Materials or the use, construction or development of any Cell Line, and (iii) are existing as of the Effective Date or obtained thereafter during the term of this Agreement. Without limiting the definition set forth in this Section 1.44 the **Selexis** Patent Rights as of the Effective Date are listed in Exhibit 1 hereto.

1.45. "**Selexis** Technology" shall mean the **Selexis** Patent Rights, **Selexis** Know-How and **Selexis** Materials.

1.46. "Taxes" shall mean all excises, taxes and duties, including without limitation VAT.

1.47. "Term" shall mean as defined in Section 7.1

1.48. "Territory" shall mean the entire world.

1.49. "Third Party" shall mean a Person other than **Selexis**, **Merrimack** or an Affiliate of **Selexis** or **Merrimack**.

1.50. "Valid Claim" shall mean any issued or granted claim of the **Selexis** Patent Rights that has not been revoked or held unenforceable or invalid by a decision of a court or other governmental agency of competent jurisdiction, that is unappealable or remains unappealed at the end of the time allowed for appeal, and that has not been disclaimed, denied or admitted to be invalid or unenforceable through reissue, re-examination, disclaimer or otherwise.

1.51. "VAT" shall mean value added tax and any other similar turnover, sales or purchase tax or duty levied by any jurisdiction, whether central, regional or local.

2 Commercial Licenses

2.1. Commercial Licenses. **Selexis** hereby grants to **Merrimack** and its Affiliates a non-exclusive license ("Commercial License") in the Territory, with the limited right to sublicense as per clause 2.2 hereafter, under the **Selexis** Technology, subject to the terms and conditions of the Agreement, to use Cell Lines for the manufacture of Products in the Licensed Field of Use and to develop, make, have made, use, offer for sale, sell, import and otherwise exploit Products, including the use of Products in research and Clinical Trials.

2.2. Sublicenses. **Merrimack** may grant sublicenses under the foregoing Commercial License and transfer the Cell Lines and **Selexis** Know-How only to Contractor(s) and/or Collaboration Partner(s) and only with respect to of the development, manufacture, use, offer for sale, sale, importation and/or

other exploitation of Products in the Licensed Field of Use. In any event, **Merrimack** is fully liable and responsible for any breach of any of its obligations hereunder committed by an Affiliate, a Collaboration Partner or Contractor, a consultant or agent to whom the Cell Line and the **Selexis** Technology or parts thereof are made available under any such sublicense.

2.3. Transfer of **Selexis** Materials. **Merrimack** and its Affiliates shall not transfer the **Selexis** Materials to any Third Party, except to Contractors or Collaboration Partners and in such case solely in connection with a sublicense under the Commercial License or for the development, manufacture, use, offer for sale, sale, importation and/or other exploitation of Products in the Licensed Field of Use.

2.4. Merrimack is fully liable and responsible for any breach of any of its obligations hereunder committed by an Affiliate, Contractor, Collaboration Partner, consultant or agent to whom a Licensed Cell Line, Selexis Materials or Selexis Technology was made available by **Merrimack**.

2.5. All rights and licenses granted under this Agreement by **Selexis** to **Merrimack** are, and shall otherwise be deemed to be, for purposes of Section 365(n) of the United States Bankruptcy Code, as amended from time to time (the "Bankruptcy Code"), licenses of rights to "intellectual property" as defined under Section 101(35A) of the Bankruptcy Code. The Parties agree that **Merrimack** shall retain and may fully exercise all of its rights and elections under the Bankruptcy Code in the event of a bankruptcy of **Selexis**.

3 Consideration

3.1. Payments.

3.1.1. Commercial License Exercise Payment. Within [**] business days after the Effective Date, **Merrimack** shall pay **Selexis** the sum of [**] Euros (€ [**]).

3.1.2. Commercial License Milestone Payments. As consideration for the rights and licenses granted by **Selexis** to **Merrimack** under this Agreement, **Merrimack** shall make the following milestone payments to **Selexis** with respect to the first occurrence of such milestone events for each Licensed Product (except that the milestone payment set forth in Section 3.1.2(a) shall not be payable with respect to the first Licensed Product):

(a) upon [**] produced using the Selexis Technology: [**] Euros (€ [**]);

(b) upon [**] produced using the Selexis Technology: [**] Euros (€ [**]);

(c) upon the [**] produced using the Selexis Technology: [**] Euros (€ [**]);

(d) upon [**] produced using the Selexis Technology: [**] Euros (€ [**]).

3.1.3. Commercial License Royalty Payments: In addition to the milestone payments set forth in Sections 3.1.1 and 3.1.2, during the Royalty Term **Merrimack** shall pay Selexis on a Product-by-Product and country-by-country basis a minimum Calendar Year royalty equal to the greater of (a) [**] Euros (€ [**]) (provided that such amount shall be pro rated for any partial Calendar Year during the Royalty Term) or (b) [**] percent ([**] %) of Net Sales of such Product sold in such country. In the case where royalties are due in respect of the sale of Product directly by **Merrimack**, such royalties shall be paid for each [**] within [**] days of the end of that [**]. Where royalties are due in respect of the sale of Licensed Product by a sub-licensee of **Merrimack**, payment shall be made within [**] days of the end of that [**]. For the avoidance of doubt no royalty payments shall be due in any country after the Royalty Term has expired in such country. Where royalties are no longer due in accordance with the foregoing in respect of any Product in any country, the Commercial Licences granted to **Merrimack** under this Agreement shall become perpetual, irrevocable, fully paid up and royalty free in respect of such Product in such country.

3.2. Mechanism of Payment. The payments due to **Selexis** under this Agreement shall be made by wire transfer or electronic fund transfer (at **Merrimack**'s discretion) to the credit and account of **Selexis** as follows:

Bank Name:	[**]
Account:	[**]
To:	**Selexis** S.A. 18, ch. Des Aulx 1228 Plan-les-Ouates Geneva, Switzerland

3.3. Payment Terms. Except as otherwise provided in Section 3.1.1 or 3.1.3, **Merrimack** shall make payments due to **Selexis** under this Agreement at the latest [**] business days after receipt of invoice except where such fees are due from a **Merrimack** licensee, in which case **Merrimack** shall have [**] days after receipt of invoice to make such payments. All such fees and payments are exclusive of any applicable Taxes, except as otherwise provided in Section 3.5.

3.4. Records. **Merrimack** and its Affiliates shall keep (and **Merrimack** shall use its best endeavours to procure that its sub-licensees shall keep and make available to **Merrimack**) true accounts of Net Sales of Licensed Products and **Merrimack** shall deliver to **Selexis** at the same time as the payments due under Section 3.1.3. a written account, including quantities of Net Sales of each such Licensed Product, broken down on a country-by-country basis in respect of those payments. **Selexis** is entitled to have such accounts for the [**] most recently completed Calendar Years audited by

a reputable international independent accounting firm of its choice. Such independent accounting firm shall be bound by confidentiality terms at least as restrictive as the terms of Section 8 of this Agreement and shall be authorized to disclose to **Selexis** only the results of its audit. **Merrimack** shall provide access to all information reasonably requested by such independent accounting firm. The cost of any audit shall be borne by **Selexis** unless the audit shows that **Merrimack** underpaid **Selexis** by more than 3% of the amounts due in any Calendar Year in which case the cost of the audit shall be borne by **Merrimack**.

3.5. Taxes.

3.5.1. All Taxes levied on account of any payment made by **Merrimack** to **Selexis** pursuant to this Agreement (other than withholding taxes (which shall be paid as set forth in Section 3.5.2), taxes on income, gains or profits levied against **Selexis** by any competent Swiss tax authority) will be the responsibility of and shall be paid by **Merrimack**. Any VAT applicable to payments made by **Merrimack** to **Selexis** pursuant to this Agreement shall be payable by **Merrimack** upon receipt of a valid VAT invoice.

3.5.2. Withholding by **Merrimack**

(a) In the event laws or regulations require withholding of Taxes from payments hereunder, such Taxes will be withheld from the applicable payments to **Selexis** hereunder and remitted by **Merrimack** to the appropriate tax authority. **Merrimack** will furnish **Selexis** with proof of payment of such Taxes. In the event that documentation is necessary in order for **Selexis** to secure an exemption from or a reduction in any withholding of Taxes, **Selexis** shall provide such documentation in a timely manner to **Merrimack**.

(b) **Merrimack**'s Right of Offset. In the event that the governing tax authority retroactively determines that a payment made to **Selexis** pursuant to this Agreement should have been subject to withholding (or to additional withholding) for Taxes, **Merrimack** will have the right to offset such amount (including any interest and penalties that may be imposed thereon) against future payment obligations of **Merrimack** under this Agreement; provided however, that if no further payments or insufficient further payments are available against which offset may be pursued, **Selexis** shall promptly (and in any event within [**] days after **Merrimack**'s request for reimbursement) reimburse **Merrimack** any portion of such amount that **Merrimack** is unable to offset. Notwithstanding the above, **Selexis** shall have no liability for interest or penalties imposed as a result of **Merrimack**'s failure to withhold Taxes if such failure was due to **Merrimack**'s negligence.

3.6. Single Royalty and Milestone. Nothing shall oblige **Merrimack** or its sublicensees to pay or cause to be paid to **Selexis** more than one royalty on any unit of Product, irrespective of how many **Selexis** Patent Rights may cover such Product. Each milestone described in Section 3.1.2 shall be payable only once in relation to each Licensed Product, irrespective of the number of Products which incorporate that Licensed Product and undergo the events described in Section 3.1.2 (a) – (d). For example, if two different Products each contain the same active ingredient (or active ingredients that are materially the same for therapeutic purposes — e.g., an antibody and a fragment of the same antibody shall be considered to be materially the same active ingredient for therapeutic purposes) that constitutes a Licensed Product, then the milestones payments set forth in Section 3.1.2 shall each be payable no more than once with respect to such Products, even though such Products may be in different dosages, formulated differently or delivered differently.

4 Intellectual Property

4.1. Ownership. Each Party shall retain the entire right and title in and to its Inventions and Know-How which exists on the Effective Date of this Agreement or which is thereafter developed independently of the performance of this Agreement.

4.2. Each Party represents that it has valid and sufficient arrangements and agreements with its directors, officers and employees (which term shall include agents, consultants and subcontractors) such that ownership of intellectual property rights in and to any Inventions made by its directors, officers and employees vests in the employer.

4.3. Any Invention developed solely by **Merrimack** shall be **Merrimack**'s sole property and any Invention developed solely by **Selexis** shall be **Selexis**' sole property. **Selexis** shall during the Term pay all renewal fees and do all such acts and things as may be necessary to maintain and keep on foot the **Selexis** Patent Rights.

4.4. Any Invention developed jointly by the Parties, but which represents an expansion or extension of the Patent Rights or Know-How of **Selexis** only, shall be owned solely by **Selexis**.

4.5. Any Invention developed jointly by the Parties, but which represents an expansion or extension of the Patent Rights or Know-How of **Merrimack** only, shall be owned solely by **Merrimack**.

4.6. Any Invention developed jointly by the Parties, which is not owned solely by one Party or the other in accordance with this Agreement, shall be owned jointly by **Merrimack** and **Selexis** and shall be handled as follows:

4.6.1. If both Parties agree to file an application for a patent in respect of any such Invention (a "Joint Patent") then the Parties shall share equally the filing and prosecution costs related to such applications, the maintenance costs and the costs of defending any resulting patent from attack, and the ownership and control of any Joint Patent (or other form of intellectual property protection) issuing thereon shall vest equally with **Merrimack** and **Selexis** with each Party having the right to use and sublicense the Invention provided that a fair and reasonable share of net revenues, as agreed between the Parties acting in good faith, received by such Party as a result of such use or sublicense shall be payable to the other Party.

4.6.2. If one Party is unwilling to pay for costs of obtaining, maintaining or defending a Joint Patent, such Party shall assign all its rights in and to such Invention (including its rights in any Joint Patent, its right to a share in revenues received in relation to such Invention and its rights to use and sublicense the use of the Invention) to the Party willing to pay those costs, whereupon it shall cease to be deemed a Joint Patent. The Party declining to share such payment shall, at the

reasonable cost of the other Party, render to the other Party such assistance, do such acts and execute such documents as might reasonably be required to give that Party the full benefit of this Section 4.6.

4.6.3. Each Party shall promptly notify the other Party of any infringement of any Joint Patent which comes to its attention and the parties shall consult in good faith with a view to agreeing on a joint response to such infringement, including any proceedings against any infringer. In the event that the Parties agree to respond jointly to the infringement, the Parties shall, unless otherwise agreed in writing, share equally all costs associated therewith and any damages or account of profits awarded to the Parties or settlement sum negotiated by the Parties. Where one Party alone (the "Responding Party") wishes to take such proceedings, the other Party shall provide all reasonable co-operation including but not limited to allowing (and doing all things reasonably necessary to allow) the other Party to prosecute those proceedings in their joint names, provided that (i) the Responding Party shall be responsible for the entire cost of any such legal proceedings and shall indemnify the other Party with regard to all costs, expenses, damages or account of profits awarded against the other Party as a result of the other Party's name being used in any proceedings, but the Responding Party shall be entitled to all costs, damages, or account of profits that may be obtained or awarded; (ii) the Responding Party shall not make any admissions, or consent to the making of any order by any court, regarding the scope, validity or enforceability of the Joint Patent without the prior, written consent of the other Party; and (iii) the Responding Party shall keep the other Party informed with regards to any steps taken in response to an infringement and shall consult the other Party over proposed future steps that are likely to have a material effect on the conduct of any legal action.

4.7. Each of the Parties hereto will promptly notify the other of any Invention arising in connection with this Agreement provided that **Merrimack** is only obliged to notify **Selexis** of such Inventions to the extent they relate to the **Selexis** Technology.

4.8. In the event **Selexis** possesses, acquires, creates or is licensed any improvements to the **Selexis** Technology, subject to any bona fide obligations owed by **Selexis** to third parties (in respect of which **Selexis** has notified **Merrimack** prior to the Effective Date), **Selexis** shall promptly notify **Merrimack** of such improvements and such improvements shall automatically be included in the **Selexis** Patent Rights and/or the **Selexis** Know-How and thereby licensed at no extra cost to **Merrimack** in accordance with this Agreement. At a minimum, **Selexis** will provide **Merrimack** with an annual report at the end of each calendar year ending during the term of this Agreement summarizing all improvements developed during the year.

4.9. Third Party Patent Rights. **Selexis** covenants that if **Selexis** becomes aware that **Merrimack**'s exploitation of its rights hereunder would, or would allegedly, infringe any Third Party proprietary rights, **Selexis** shall use its best efforts to resolve such infringement at **Selexis**' cost to ensure **Merrimack**'s

freedom to continue to use the licenses pursuant to this Agreement, including using its best efforts to obtain a license from the Third Party owner of the proprietary rights which entitles **Selexis** to continue to grant the rights to **Merrimack** as mentioned herein. Should such efforts not be successful, **Selexis** shall inform **Merrimack** in writing and thereafter either Party may terminate this Agreement with immediate effect, save that **Selexis** shall not have such right to the extent that **Merrimack** agrees to waive any liability **Selexis** would otherwise have to **Merrimack** hereunder in respect of the infringement of the Third Party proprietary right in question; provided that, notwithstanding any such waiver of liability, **Merrimack** shall be entitled to offset any and all Losses, including without limitation litigation costs and expenses, amounts paid in settlement and license fees, milestone payments and royalties, paid by **Merrimack**, or any of its Affiliates or sublicensees, and arising from such infringement of Third Party proprietary rights, against any amounts otherwise payable by **Merrimack**, its Affiliates or sublicensees to **Selexis** hereunder. For the avoidance of doubt, the right of offset set forth in the immediately preceding sentence shall not entitle **Merrimack** to any refund of amounts previously paid to **Selexis** or amounts accrued and payable to **Selexis** up to the date of receipt of the aforementioned waiver.

4.10. Enforcement of **Selexis** Patent Rights. If during the Term, either Party becomes aware of any infringement or potential infringement of the **Selexis** Technology it shall promptly notify the other Party in writing and the Parties shall consult with each other to decide the best way to respond to such infringement or misuse. **Selexis** covenants that if **Selexis** becomes aware of an infringement of the **Selexis** Patent Rights by Third Parties in the Licensed Field of Use, **Selexis** shall use its best efforts to prevent or enjoin such infringement. In the event **Selexis** is unable or unwilling to sue the alleged infringer within (i) [**] days of the date of notice of such infringement, or (ii) [**] days before the time limit, if any, set forth in the applicable laws in regulations for the filing of such actions, whichever comes first, then **Merrimack** may, but shall not be required to take such action as **Merrimack** may deem appropriate to prevent or enjoin the alleged infringement or threatened infringement of **Selexis** Patent Rights. In such event, **Merrimack** shall act at its own expense, and **Selexis** shall cooperate reasonably with **Merrimack** at the expense of **Merrimack**, and **Selexis** agrees to be named as a nominal Party. In the event of such action by **Merrimack**, any recovery obtained shall be paid to **Merrimack**.

4.11. **Merrimack** Intellectual Property. Subject to Section 4.6, **Merrimack** shall retain all right, title and interest in (and the unrestricted right to use) any and all information, data, results, Know-How, products and the like, whether patentable or not, arising out of the conduct of the licenses granted hereunder and all intellectual property appurtenant thereto, including without limitation the Product composition or sequence and any related intellectual property. **Merrimack** shall have the unrestricted right to publish or otherwise disclose the results and data obtained by the practice of the **Selexis** Technology provided such disclosure does not include the Confidential Information of **Selexis**. The name of **Selexis** shall be given proper recognition in such publication(s) as scientifically appropriate.

4.12. Further assurance. Each Party agrees to execute and do all things at the cost of the other Party (if not specifically agreed otherwise) as the other Party may reasonably require to give that other Party the full benefit of the provisions of this Section 4.

5 Representations, Warranties, and Covenants

5.1. Corporate Power. Each Party hereby represents and warrants that such Party is duly organized and validly existing under the laws of the state (or country or other jurisdiction, as the context requires) of its incorporation and has full corporate power and authority to enter into this Agreement and to carry out the provisions hereof.

5.2. Due Authorization. Each Party hereby represents and warrants that such Party is duly authorized to execute and deliver this Agreement and to perform its obligations hereunder and the person executing this Agreement on its behalf has been duly authorized to do so by all requisite corporate actions.

5.3. Binding Agreement. Each Party hereby represents and warrants that this Agreement is a legal and valid obligation binding upon it and is enforceable in accordance with its terms, except as enforceability may be limited by bankruptcy, fraudulent conveyance, insolvency, reorganization, moratorium and other laws relating to or affecting creditors' rights generally and by general equitable principles and public policy.

5.4. No Conflicts. Each Party hereby represents and warrants that the execution, delivery and performance of this Agreement by such Party does not conflict with any agreement, instrument or understanding, oral or written, to which it is a Party or by which it may be bound, nor violate any law or regulation of any court, governmental body or administrative or other agency having authority over it.

5.5. Additional Warranties by **Selexis**. **Selexis** hereby warrants, represents and covenants to **Merrimack** that:

5.5.1. As of the Effective Date, to the best of its knowledge, there are no Third Party intellectual property rights that may be asserted against **Merrimack** claiming that the use by **Merrimack** of the **Selexis** Technology under this Agreement constitutes an infringement thereof;

5.5.2. As of the Effective Date, there is no pending litigation which alleges that the use of **Selexis** Technology has infringed or misappropriated any of the intellectual property rights of any Third Party, and **Selexis** has not received any claim that the use of **Selexis** Technology infringes on any intellectual property rights of a Third Party or a request or demand from any Third Party for the licensing of any intellectual property rights of such party in connection with the practice of the **Selexis** Technology;

5.5.3. **Selexis** is the owner of or controls the **Selexis** Technology, and has the right to grant **Merrimack** the rights granted **Merrimack** under this Agreement, and will not during the Term grant any rights

to any Third Party that would adversely affect **Merrimack**'s rights granted under this Agreement;

5.5.4. The **Selexis** Technology is free and clear of any encumbrance, lien, mortgage, charge, restriction or to its best knowledge liability of any kind whatsoever, whether equitable or legal, that would conflict with or impair the rights granted to **Merrimack** under this Agreement;

5.5.5. As of the Effective Date, none of the **Selexis** Patent Rights are involved in any interference or opposition proceeding, and **Selexis** has not received any request, demand or notice from any Third Party threatening or disclosing such a proceeding with respect to any of the **Selexis** Patent Rights; and

5.5.6. As of the Effective Date, **Selexis** has not received any statement or assertion that (i) any claim in any of the **Selexis** Patent Rights is, or may be or become rendered, invalid or unenforceable, (ii) any Third Party is aware of any basis as to the future potential invalidity or unenforceability of any claim of any of the **Selexis** Patent Rights, or (iii) the **Selexis** Patent Rights do not list all required inventors.

5.5.7. Any replacement **Selexis** Materials shall be free of mycoplasma or other pathogenic contamination.

5.6. Notification. **Selexis** shall notify **Merrimack** promptly during the Term, if:

5.6.1. **Selexis** Patent Rights become involved in any interference or opposition proceeding, or **Selexis** receives any request, demand or notice from any Third Party threatening or disclosing such a proceeding with respect to any of the **Selexis** Patent Rights; or

5.6.2. **Selexis** receives any statement or assertion that (i) any claim in any of the **Selexis** Patent Rights is, or may be or become rendered, invalid or unenforceable, (ii) any Third Party is aware of any basis as to the future potential invalidity or unenforceability of any claim of any of the **Selexis** Patent Rights, or (iii) the **Selexis** Patent Rights do not list all required inventors.

5.7. Disclaimer of Warranties by **Selexis**. EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, SELEXIS DOES NOT MAKE ANY REPRESENTATION OR WARRANTY TO **Merrimack** OF ANY NATURE, EXPRESS OR IMPLIED, THAT THE SELEXIS TECHNOLOGY WILL BE USEFUL FOR, OR ACHIEVE ANY PARTICULAR RESULTS AS A RESULT OF ANY USE BY **Merrimack** OF THE SELEXIS TECHNOLOGY PURSUANT TO ANY LICENSE GRANTED TO **Merrimack** UNDER THIS AGREEMENT. EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, SELEXIS SPECIFICALLY DISCLAIMS ANY WARRANTY OF NONINFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE.

6 Indemnification

6.1. Indemnification by **Selexis**. During the Term and thereafter, **Selexis** hereby agrees to save, defend and hold **Merrimack**, its Affiliates, and their respective officers, directors, employees, consultants and agents harmless from and against any and all liability, damage, loss or expense (collectively, "Losses") claimed by a Third Party resulting from the breach of any representation, warranty or covenant in this Agreement by **Selexis**, except to the extent that such Losses result from the gross negligence or intentional misconduct of **Merrimack**, its Affiliates, and their respective officers, directors, employees, consultants and agents; provided however that, if such Losses result from the negligence or gross negligence of **Selexis**, but not from any breach of any representation or warranty and not from intentional misconduct of **Selexis**, its Affiliates, or any of their respective officers, directors, employees, consultants and agents, **Selexis** shall not be responsible for such Losses in excess of the aggregate amount paid by **Merrimack** to **Selexis** under this Agreement. In the event **Merrimack** seeks indemnification under this Section 6.1, **Merrimack** shall inform **Selexis** of a claim as soon as reasonably practicable after it receives notice of the claim, shall permit **Selexis** to assume direction and control of the defense of the claim (including the right to settle the claim solely for monetary consideration), and shall cooperate as requested (at **Selexis**' expense) in the defense of the claim but provided always that **Selexis** may not settle any such claim or otherwise consent to an adverse judgment or order in any relevant action or other proceeding or make any admission as to liability or fault without the express written permission of **Merrimack**.

6.2. Indemnification by **Merrimack**. During the Term and thereafter, **Merrimack** hereby agrees to save, defend and hold **Selexis** and its officers, directors, employees, consultants and agents harmless from and against any and all Losses claimed by a Third Party resulting from personal injury or damage to property caused by any Licensed Products, except to the extent that **Merrimack** is indemnified by **Selexis** in respect of those Losses pursuant to Section 6.1 or that such Losses result from the gross negligence or intentional misconduct of **Selexis**. In the event **Selexis** seeks indemnification under this Section 6.2, **Selexis** shall inform **Merrimack** of a claim as soon as reasonably practicable after it receives notice of the claim, shall permit **Merrimack** to assume direction and control of the defense of the claim (including the right to settle the claim solely for monetary consideration), and shall cooperate as requested (at **Merrimack**'s expense) in the defense of the claim.

6.3. Insurance. **Merrimack** shall obtain and maintain during the Term and for [**] years thereafter product liability insurance in respect of any Products with a reputable and solvent insurance provider in a commercially adequate amount. Such liability insurance shall insure against all mandatory liability including liability for personal injury, physical injury and property damage. **Merrimack** shall provide **Selexis** with written proof of the existence of such insurance upon request.

7 Term and Termination

7.1. Term. This Agreement shall enter into effect on the Effective Date. Unless earlier terminated pursuant to Sections 7.2, 7.3 or 7.4 of this Agreement shall remain in full force and effect until expiration of the last-to-expire of the **Selexis** Patent Rights (such period, the "Term").

7.2. Termination for Default. In addition to any other remedies which may be available at law or equity, in the event of any material breach of this Agreement by a Party ("Default"), the Party not in default ("Non-Defaulting Party") shall have the right to give the other Party ("Defaulting Party") written notice thereof ("Notice of Default"), which notice must state the nature of the Default in reasonable detail and request that the Defaulting Party cure such Default within [**] days. If such Default is not cured within the period set forth herein after receipt of a Notice of Default by the Defaulting Party or if such Default is not capable of being cured, then the Non-Defaulting Party, at its option, may terminate this Agreement by written notice effective upon receipt. Notwithstanding the foregoing, if the Defaulting Party notifies the Non-Defaulting Party that the Defaulting Party disputes the existence of the Default prior to the expiration of the foregoing cure period, and if such dispute is made in good faith, the running of such cure period shall be tolled until the earlier of such time as such dispute is finally resolved in accordance with Sections 9.4 and 9.8 or until such time as the Defaulting Party ceases to dispute such Default in good faith; provided that during the pendency of any such *bona fide* dispute, the Defaulting Party continues to perform its undisputed obligations hereunder, including without limitation the payment of all undisputed amounts owed by the Defaulting Party.

7.3. Termination for Bankruptcy. In the event **Merrimack** shall become insolvent or make any arrangement with its creditors or has a receiver or administration appointed to the whole or any part of its assets or if an order shall be made or a resolution passed for its winding up unless such order or resolution is part of a scheme for its amalgamation or reconstruction, **Selexis** shall have the right to serve immediate notice of termination of this Agreement effective upon receipt; provided that **Selexis** shall not have such right of termination if, notwithstanding such insolvency, arrangement, appointment, order or resolution, **Merrimack** continues to perform its obligations under this Agreement..

7.4. Termination by **Merrimack**. **Merrimack** may terminate this Agreement at any time by giving sixty (60) days written notice to **Selexis**.

7.5. Effects of Expiration or Termination.

7.5.1. Termination of Licenses. In the event of a termination of this Agreement by **Merrimack** pursuant to Section 7.2 or 7.4 or by **Selexis** pursuant to Section 7.2 or 7.3, the rights and licenses granted under this Agreement shall terminate other than those licenses which have become perpetual as described in Section 3.1.3; provided that, in the event of a termination by **Selexis** pursuant to Section 7.2 or 7.3, if **Merrimack** has granted a sublicense prior to such termination and such

termination is not the result of a Default caused by the sublicensee's breach of the sublicense agreement, such sublicensee shall have the right to retain its sublicense (which sublicense shall survive as a direct license from **Selexis** notwithstanding the termination of this Agreement); provided further that, in the event of any such sublicense survival, the sublicensee shall be obligated to pay **Selexis** all amounts payable under Section 3 of this Agreement based on such sublicensee's development and commercialization of Products.

7.5.2. **Selexis** Confidential Information. Upon termination of this Agreement **Merrimack** shall dispose of all tangible embodiments, including **Selexis** Materials, and render inaccessible or useless all electronic embodiments, of **Selexis** Confidential Information provided to **Merrimack** by **Selexis** hereunder, except that **Merrimack** may retain one (1) copy thereof for legal archival purposes.

7.5.3. **Merrimack** Confidential Information. Upon any expiration or termination of this Agreement, **Selexis** shall dispose of all tangible embodiments, and render inaccessible or useless all electronic embodiments, of **Merrimack** Confidential Information provided to **Selexis** by **Merrimack** hereunder, except that **Selexis** may retain one (1) copy thereof for legal archival purposes.

7.5.4. Accrued Obligations. Expiration or termination of this Agreement shall not relieve the Parties of any obligation or liability accruing prior to such expiration or termination and all ancillary provisions necessary for the implementation of this Section 7.5.5 shall survive termination.

7.5.5. Survival. Sections 3.1.3, 3.4, 4, 6, 7, 8 and 9 shall survive termination or expiration of this Agreement.

8 Confidentiality

8.1. Nondisclosure. During the Term, and for a period of five (5) years thereafter, each Party will maintain all Confidential Information of the other Party as confidential and will not disclose any Confidential Information to any Third Party except to its Affiliates, sublicensees, employees, agents, consultants and other representatives, who have a need to know such Confidential Information and who are bound by obligations of confidentiality at least as restrictive as set forth herein. Each Party may use such Confidential Information only to the extent required to accomplish the purposes of this Agreement. Each Party will use at least the same standard of care as it uses to protect proprietary or confidential information of its own to ensure that its Affiliates, employees, agents, consultants and other representatives do not disclose or make any unauthorized use of the Confidential Information.

8.2. Exceptions. Confidential Information shall not include any information that the receiving Party can prove by competent evidence is:

8.2.1. now, or hereafter becomes, through no act or failure to act on the part of the receiving Party, generally known or available;

8.2.2. known by the receiving Party at the time of receiving such information, as evidenced by its records;

8.2.3. hereafter furnished to the receiving Party by a Third Party, as a matter of right and without restriction on disclosure;

8.2.4. independently developed by the receiving Party without the aid, application or use of Confidential Information; or

8.2.5. the subject of a written permission to disclose provided by the providing Party.

8.3. Authorized Disclosures. Each Party shall be permitted to disclose Confidential Information of the other Party:

8.3.1. to the extent that, such Confidential Information is required to be disclosed to comply with applicable laws or regulations (such as pursuant to securities law disclosure rules or disclosure rules of the United States Securities and Exchange Commission or any stock exchange or to comply with the request or order of any applicable Regulatory Authority, whether or not having the force of law) or with a court or administrative order; provided however, that such Party shall first have given written notice of such required disclosure to the other Party, shall make reasonable efforts to narrow the scope of Confidential Information of the other Party required to be disclosed, and shall take reasonable steps to allow the other Party at its own expense to seek a protective order to protect the confidentiality of the Confidential Information required to be disclosed;

8.3.2. to establish rights or enforce obligations under this Agreement, but only to the extent such disclosure is necessary and provided that such Party seeks confidential treatment of the Confidential Information to be disclosed; or

8.3.3. to the disclosing Party's investors, acquirors, lenders and collaborators, and potential acquirors, lenders and collaborators, under obligations of confidentiality and non-use no less restrictive than those set forth in this Section 8.

9 Miscellaneous

9.1. Assignment. Neither this Agreement nor any interest hereunder shall be assignable by either Party without the prior written consent of the other Party; provided, that either Party may assign this Agreement and all of its rights and obligations hereunder, without such consent, to an entity which acquires all or substantially all of the business or assets of such Party (or the business or assets to which this Agreement pertains) whether by merger, consolidation, reorganization, acquisition, sale, license or otherwise; and **Merrimack** may assign this Agreement and all of its rights and obligations hereunder, without such consent, to an Affiliate if **Merrimack** remains liable and responsible for the performance and observance of all of the Affiliate's duties and obligations hereunder, and provided that such Affiliate is not a Contract Manufacturing Organization. This Agreement shall be binding upon the successors and permitted assigns of the Parties and the name of a Party appearing herein shall be deemed to include the names of such Party's successors and permitted assigns to the extent necessary to carry out the intent of this Agreement. Any assignment not in accordance with this Section 9.1 shall be null and void.

9.2. Compliance with Governmental Obligations. Each Party shall comply, upon reasonable notice from the other Party, with all governmental requests directed to either Party and provide all information and assistance necessary to comply with the governmental requests.

9.3. Counterparts. This Agreement may be executed in any number of counterparts, each of which need not contain the signature of more than one Party but all such counterparts taken together shall constitute one and the same agreement, and may be executed through the use of facsimiles.

9.4. Dispute Resolution. The Parties agree that in the event of a dispute between them arising from, concerning or in any way relating to this Agreement, the Parties shall undertake good faith efforts to resolve any such dispute in good faith with the matter being referred at the request of either Party to the general counsel for each Party and, if remaining unresolved after [**] days, then to the chief executive officers of each Party (or their designees).

If after [**] days of the matter first being referred to the general counsel the Parties are unable to resolve such dispute, either Party may submit such matter to binding arbitration pursuant to Section 9.8 of this Agreement.

9.5. Entire Agreement. This Agreement (including the Exhibits attached hereto, which are incorporated herein by reference) sets forth all of the covenants, promises, agreements, warranties, representations, conditions and understandings between the Parties hereto with respect to the subject matter hereof; constitutes and contains the complete, final, and exclusive understanding and agreement of the Parties with respect to the subject matter hereof; and cancels, supersedes and terminates all prior agreements and understanding between the Parties with respect to the subject matter hereof. There are no covenants, promises, agreements, warranties, representations conditions or understandings, whether oral or written, between the Parties other than as set forth herein. No subsequent alteration, amendment,

change or addition to this Agreement shall be binding upon the Parties hereto unless reduced to writing and signed by the respective authorized officers of the Parties.

9.6. Force Majeure. Neither Party shall be liable to the other for loss or damages for any default or delay attributable to any Force Majeure, if the Party affected shall give prompt notice of any such cause to the other Party. The Party giving such notice shall thereupon be excused from such of its obligations hereunder as it is thereby disabled from performing for so long as it is so disabled, provided, however, that such affected Party commences and continues to take reasonable and diligent actions to cure such cause; and provided further that if any Force Majeure delays or prevents the performance of the obligations of either party for a continuous period in excess of six months, the party not so affected shall then be entitled to give notice to the affected party to terminate this Agreement, specifying the date (which shall not be less than 30 days after the date on which the notice is given) on which termination will take effect. Such a termination notice shall be irrevocable, except with the consent of both parties, and upon termination the provisions of Section 7.5 shall apply.

9.7. Further Actions. Each Party agrees to execute, acknowledge and deliver such further instruments, and to do all such other acts, as may be necessary or appropriate in order to carry out the purposes and intent of the Agreement.

9.8. Governing Law and Arbitration. This Agreement shall be governed by and interpreted in accordance with the substantive laws of Germany. Any dispute, controversy or claim arising out of or relating to this Agreement, or to a breach thereof, including its interpretation, performance or termination, shall be submitted to and finally resolved by binding arbitration. The arbitration shall be conducted by a single arbitrator in accordance with the arbitration rules of the International Chamber of Commerce, which shall administer the arbitration and act as appointing authority. The arbitration, including the rendering of the award, shall take place in London, England, and shall be the exclusive forum for resolving such dispute, controversy or claim. Notwithstanding the foregoing, either party may seek interim relief or bring action(s) in aid of arbitration in any court of competent jurisdiction.

9.9. Independent Contractors. The relationship between **Selexis** and **Merrimack** created by this Agreement is one of independent contractors and neither Party shall have the power or authority to bind or obligate the other Party except as expressly set forth in this Agreement.

9.10. Interpretation of Agreement. Article and other descriptive headings used in this Agreement are for reference purposes only and shall not constitute a part hereof or affect the meaning or interpretation of this Agreement. Whenever the context so requires, the use of the singular shall be deemed to include the plural and vice versa.

9.11. License Obligations. Nothing in this Agreement imposes any obligation upon a Party to enter into any other license or agreement with the other Party.

9.12. Non-Disclosure. Except as otherwise required by law or regulation, and only after compliance with this Section 9.12, neither Party shall issue a press release or make any other public disclosure of the existence of or the terms of this Agreement, or otherwise use the name or trademarks or products of the other Party or the names of any employee thereof, without the prior approval of such press release or disclosure by the other Party. However if, in the reasonable opinion of such Party's counsel, a public disclosure shall be required by law, regulation, or court order, including without limitation in a filing with the United States Securities and Exchange Commission, the United States Food and Drug Administration, the European Medicines Agency or any similar governmental or regulatory agency in any country of the Territory, the disclosing Party shall use reasonable efforts to provide a copy of the disclosure reasonably in advance of such filing or other disclosure for the non-disclosing Party's prior review and comment, and the non-disclosing Party shall provide its comments as soon as practicable. No disclosure permitted by this Section 9.12 shall contain any Confidential Information of the other Party unless otherwise permitted in accordance with Section 8 herein.

9.13. Notices. All notices and other communications required by this Agreement shall be in writing in the English language and shall be deemed given if delivered personally or by facsimile transmission (receipt verified), mailed by registered or certified mail (return receipt requested), postage prepaid, or sent by express courier service, to the Parties at the following addresses (or at such other address for a Party as shall be specified by like notice, provided, however, that notices of a change of address shall be effective only upon receipt thereof):

If to **Merrimack**, addressed to:

Merrimack Pharmaceuticals
One Kendall Square
Building 700, 2nd Floor
Cambridge, MA USA 02139

Attention Vice President, Business Development

With a copy to:

WilmerHale

60 State Street
Boston, MA 02109
USA
Attention: Steven D. Barrett, Esq.

If to **Selexis**, addressed to:

Selexis, S.A.
18 Chemin des Aulx
1228 Plan-les-Ouates
Geneva, Switzerland

Attention: Accountant, Patricia Ghommidh
With a copy to: CEO, Igor Fisch, Ph.D.

Facsimile: +41 22 308-9361

or to such addresses or addresses as the Parties hereto may designate for such purposes during the Term. Notices shall be deemed to have been sufficiently given or made: (i) if by facsimile with confirmed transmission, when performed, and (ii) if by air courier upon receipt by the Party.

9.14. Parties in Interest. This Agreement shall be binding upon and inure solely to the benefit of **Merrimack** and **Selexis** (and their permitted successors and assigns) and nothing in this Agreement (express or implied) is intended to or shall confer upon any Third Party any rights, benefits or remedies of any nature whatsoever under or by reason of this Agreement.

9.15. Severability. If any term, covenant or condition of this Agreement or the application thereof to any Party or circumstance shall, to any extent, be held to be invalid or unenforceable, then the remainder of this Agreement, or the application of such term, covenant or condition to parties or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected thereby and each term, covenant or condition of this Agreement shall be valid and be enforced to the fullest extent permitted by law.

9.16. Use of Name. No right, express or implied, is granted to either Party by this Agreement to use in any manner any trademark or trade name of the other Party including the names "**Merrimack**" and "**Selexis**" without the prior written consent of the owning Party.

9.17. Waiver. The failure on the part of a Party to exercise or enforce any rights conferred upon it hereunder shall not be deemed to be a waiver of any such rights nor operate to bar the exercise or enforcement thereof at any time or times hereafter.

In Witness Whereof, the Parties, having read the terms of this Agreement and intending to be legally bound hereby, do hereby execute this Agreement.

SELEXIS S.A.

By:	/s/ Igor Fisch	By:	/s/ Pierre-Alain Girod
Name:	Dr Igor Fisch	Name:	Pierre-Alain Girod
Title:	CEO	Title:	Duly Authorized-CSO
Date:	6th June 2008	Date:	6th June 2008

Merrimack

By:	/s/ Edward J. Stewart	By:	/s/ Lisa A. Evren
Name:	Edward J. Stewart	Name:	Lisa A. Evren
Title:	Vice President, Business Development	Title:	SVP & CFO
Date:	5/23/08	Date:	5/23/08

EXHIBIT 1

SELEXIS PATENT RIGHTS

Patent 1.

Title	[**]
Priority date	[**]
Priority ID	[**]
Publication ID	[**]
Geographies	[**]
Status	[**]
Content	[**]
Comments	[**]

Patent 2.

Title	[**]
Priority date	[**]
Priority ID	[**]
Publication ID	[**]
Geographies	[**]
Status	[**]
Content	[**]
Comments	[**]

AMENDMENT NO. 1 TO

NON-EXCLUSIVE PATENT LICENSE AGREEMENT

This Amendment No. 1 (this "Amendment") to the Non-exclusive Patent License Agreement dated as of April 26, 2006 (the "Agreement") by and between Merrimack Pharmaceuticals, Inc. ("Merrimack") and Selexis, S.A. ("Selexis"), is entered into by Merrimack and Selexis as of January 8, 2010 (the "Amendment Effective Date"). Capitalized terms not otherwise defined herein shall have the meaning given to them under the Agreement.

WHEREAS, Merrimack wishes to extend the term of the Agreement.

WHEREAS, Selexis accepts an extension of the term of the Agreement, upon the terms and conditions set forth in this Amendment.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Merrimack and Selexis hereby agree to the following:

1. Term Extensions. The parties hereto acknowledge and agree that the current Term of the Agreement, as extended, expires on April 26, 2010. Notwithstanding anything in Section 7.1.2 of the Agreement to the contrary, the first paragraph of Section 7.1.2 is hereby superseded and replaced by the following:

"Merrimack shall have the continuing option to extend the Term of the Agreement and the R&D licenses granted hereunder for up to ten (10) additional one (1) year extension periods, commencing with the current one (1) year extension period which expires on April 26, 2010, in return for an annual non-refundable payment in the following amounts, payable within [**] days of each anniversary of the Effective Date:

(a) For Extension Year 1 and Year 2: [**] shall be payable by Merrimack (retroactively or otherwise) to extend the Term for the current one-year extension period which expires on April 26, 2010 (Extention Year 1) or for the one-year extension period commencing on April 27, 2010 and expiring on April 26, 2011 (Extension Year 2);

(b) For Extension Year 3: [**] Euros (€[**]);

(c) For Extension Year 4: [**] Euros (€[**]);

(d) For Extension Year 5: [**] (€[**]); and

(e) For Each of the Extension Years 6 through 10: [**] Euros (€[**]).”

2. Entire Agreement. The Agreement, as amended by this Amendment, contain the entire agreement among the parties with respect to the subject matter hereof and amend, restate and supersede all prior and contemporaneous arrangements or understandings with respect thereto.

3. Ratification. The Agreement, as amended by this Amendment, is hereby ratified and confirmed and remains in full force and effect.

4. Counterparts. This Amendment may be executed in any number of counterparts, each of which need not contain the signature of more than one party hereto but all such counterparts taken together shall constitute one and the same agreement, and may be executed through the use of facsimiles.

* * * * *

1 Kendall Square · Suite B7201 · Cambridge, MA 02139-1670
Tel: (617) 441-1000 Fax (617) 491-1386
www.merrimackpharma.com

IN WITNESS WHEREOF, the parties hereto have executed this Amendment as of the Amendment Effective Date.

SELEXIS, S.A.

By: /s/ Igor Fisch
Name: Igor Fisch
Title: CEO

By: /s/ Regine Brokamp
Name: Regine Brokamp
Title: COO

MERRIMACK PHARMACEUTICALS, INC.

By: /s/ Edward J. Stewart
Name: Edward J. Stewart
Title: SVP, Bus. Dev.

Exhibit 10.20

Confidential Materials omitted and filed separately with the
Securities and Exchange Commission. Asterisk denote omissions.

EXCLUSIVE LICENSE AGREEMENT

between

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

and

HERMES BIOSCIENCES, INC.

for

[**]
(UC Case No. [**])

[**]
(UC Case No. [**])

[**]
(UC Case No. [**])

and

CO-EXCLUSIVE LICENSE AGREEMENT

between

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

and

HERMES BIOSCIENCES, INC.

for

[**]
(UC Case No. [**])

[**]
(UC Case No. [**])

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EXCLUSIVE LICENSE AGREEMENT

for

[**]
(UC Case No. [**])

[**]
(UC Case No. [**])

[**]
(UC Case No. [**])

and

CO-EXCLUSIVE LICENSE AGREEMENT

for

[**]
(UC Case No. [**])

[**]
(UC Case No. [**])

This license agreement ("Agreement") is made effective this 1st day of November, 2000 ("Effective Date"), between The Regents of the University of California, a California corporation, having its statewide administrative offices at 1111 Franklin Street, 12th Floor, Oakland, California 94607-5200 ("The Regents"), and Hermes Biosciences, Inc., a California corporation, having a principal place of business at 61 Airport Boulevard, Suite B, South San Francisco, California 94080 ("Licensee").

BACKGROUND

A. Certain inventions, generally characterized as:

(i) "[**]" made in the course of research at University of California, San Francisco by Drs. [**], (UC Case No. [**]);

(ii) "[**]" made in the course of research at University of California, San Francisco by Drs. [**] (UC Case No. [**]);

(iii) "[**]" made in the course of research at University of California, San Francisco by Drs. [**], (UC Case No. [**]);

(iv) "[**]" made in the course of research at University of California, San Francisco by Drs. [**] (UC Case No. [**]); and,

(v) "[**]" made in the course of research at University of California, San Francisco, by Drs. [**], (UC Case No. [**]) collectively the "Invention," and are covered by Regents' Patent Rights as defined below.

B. The development of UC Case Nos. [**] and [**] were sponsored in part by the National Institutes of Health ("NIH") and the development of UC Case Nos. [**] and [**] were sponsored in part by the U.S. Department of Defense and , as a consequence, this Agreement is subject to overriding obligations to the United States ("U.S.") Federal Government under 35 U.S.C. §§ 200-212 and applicable regulations including a non-exclusive, non-transferable, irrevocable, paid-up license to practice or have practiced the Invention for or on behalf of the United States Government throughout the world.

C. The development of UC Case No. [**] was sponsored in part by Bayer Corporation; however, Bayer does not retain any rights to the Invention.

D. The Regents has elected to retain title to UC Case Nos. [**]and [**].

E. Licensee has evaluated the Invention under Secrecy Agreements with The Regents covering UC Case No. [**] (UC Control No. [**]) dated [**]; UC Case No. [**] (UC Control No. [**]) dated [**]; UC Case No. [**] (UC Control No. [**]) dated [**]; UC Case No. [**] (UC Control No. [**]) dated [**]; and UC Case No. [**] (UC Control No. [**]) dated [**].

F. Licensee wishes to obtain rights from The Regents for the commercial development, use and sale of products from the Invention, and The Regents is willing to grant those rights so that the Invention may be developed to its fullest and the benefits enjoyed by the general public.

G. Licensee is a "small business firm" as defined in 15 U.S.C. § 632.

H. Both parties recognize and agree that royalties due under this Agreement on products and methods will be paid by Licensee on both pending patent applications and issued patents.

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In view of the foregoing, the parties agree:

1. DEFINITIONS

1.1 "Affiliate" means any corporation or other business entity in which Licensee owns or controls, directly or indirectly, at least fifty percent (50%) of the outstanding stock or other voting rights entitled to elect directors or in which Licensee is owned or controlled, directly or indirectly, by at least fifty percent (50%) of the outstanding stock or other voting rights entitled to elect directors; but in any country where the local law does not permit foreign equity participation of at least fifty percent (50%), then an "Affiliate" includes any company in which Licensee owns or controls, or is owned or controlled by, directly or indirectly, the maximum percentage of outstanding stock or voting rights permitted by local law.

1.2 "Combination Product" means a product that consists of the Licensed Product combined with other active components not subject to this Agreement that:

1.2.1 are not covered by Regents' Patent Rights;

1.2.2 the manufacture, sale, use or import by itself does not contribute to the infringement of Regents' Patent Rights; and

1.2.3 can be sold separately by Licensee, an Affiliate or sublicensee.

1.3 "Licensed Method" means any method that is covered by Regents' Patent Rights, or the use of which would constitute, but for the license granted to Licensee under this Agreement, an infringement of any pending or issued claim within Regents' Patent Rights.

1.4 "Licensed Product" means any material that is either covered by Regents' Patent Rights, that is identified or produced by the Licensed Method, or that the use of which would

constitute, but for the license granted to Licensee under this Agreement, an infringement of any pending or issued claim within Regents' Patent Rights.

1.5 "Net Sales" means the total of the gross invoice prices from the Final Sale of Licensed Product to an independent, unaffiliated third party or Licensed Method performed by Licensee, an Affiliate or a sublicensee, less the sum of the following actual and customary deductions where applicable: cash, trade or quantity discounts; sales, use, tariff, import/export duties or other excise taxes imposed on particular sales (excepting value added taxes or income taxes); transportation charges, including insurance; and allowances or credits to customers because of rejections or returns. Final Sale means the sale which is the last act of infringement of Regents' Patent Rights within the control of Licensee, an Affiliate or sublicensee, regardless of whether Licensee, an Affiliate or sublicensee had control over prior infringing acts. For purposes of calculating Net Sales, any distribution or transfer among Licensee, an Affiliate or sublicensee for end use by Licensee, an Affiliate or sublicensee (which event is the last act of infringement of Regents' Patent Rights) will be considered a Final Sale at the price normally charged to independent, unaffiliated third parties.

1.6 "Regents' Patent Rights-Group A" means The Regents' interest in the subject matter claimed in or covered by:

UC Case Number	U.S. Application Number	Filing Date
[**]	[**]	[**]
[**]	[**]	[**]
[**]	[**]	[**]
[**]	[**]	[**]
[**]	[**]	[**]
[**]	[**]	[**]

and continuing applications thereof including divisions and substitutions but excluding continuation-in-part applications to the extent that claims are not supported in the parent; any patents issuing on said applications including reissues, reexaminations and extensions; and any corresponding foreign applications or patents.

1.7 "Regents' Patent Rights-Group B" means The Regents' interest in the subject matter claimed in or covered by:

UC Case Number	U.S. Application Number	Filing Date
[**]	[**]	[**]
[**]	[**]	[**]
[**]	[**]	[**]
[**]	[**]	[**]

and continuing applications thereof including divisions and substitutions but excluding continuation-in-part applications to the extent that claims are not supported in the parent; any patents issuing on said applications including reissues, reexaminations and extensions; and any corresponding foreign applications or patents.

1.8 "Regents' Patent Rights" means Regents Patent Rights-Group A and Regents' Patent Rights-Group B.

2. LIFE OF PATENT GRANT

2.1 Subject to the limitations set forth in this Agreement, The Regents grants to Licensee a world-wide exclusive license under Regents' Patent Rights-Group A to make, have made, use, sell, offer to sell and import Licensed Product and to practice Licensed Method to the extent permitted by law.

2.2 Subject to the limitations set forth in this Agreement, The Regents grants to Licensee a world-wide co-exclusive license under Regents' Patent Rights-Group B to make, have made, use, sell, offer to sell and import Licensed Product and to practice Licensed Method to the extent permitted by law. The co-exclusive license of this Paragraph 2.2 for Regents' Patent Rights-Group B is co-exclusive in that The Regents retains the right to grant one other additional license. The additional license will first be offered to [**] or its successors. In the event the additional license is not accepted and completed by [**] or its successors and before The Regents starts negotiations with a third party for the additional license, the Licensee shall have the right to negotiate for an exclusive license to Regents' Patent Rights-Group B with a field of use. The Regents and Licensee shall enter good faith negotiations for the exclusive license with a field of use within [**] days of notice by The Regents that The Regents has terminated licensing negotiations with [**]. Negotiations with Licensee must be completed within [**] months.

2.3 The licenses granted in Paragraphs 2.1 and 2.2 are subject to all the applicable provisions of any license to the U.S. Government executed by The Regents and is subject to the overriding obligations to the U.S. Government under 35 U.S.C. §§ 200-212 and applicable governmental implementing regulations.

2.4 The Regents reserves the right to use the Invention and associated technology for noncommercial, educational and research purposes including publication of research results and sharing such research results and the Invention and associated technology with other non-profit institutions for their use of similar scope.

3. SUBLICENSES

3.1 The Regents also grants to Licensee the right to issue sublicenses to third parties to make, have made, use, sell, offer to sell and import Licensed Product and to practice Licensed Method under Regents' Patent Rights as long as Licensee has current exclusive or co-exclusive rights thereto under this Agreement. To the extent applicable, sublicenses must include all of the rights of and obligations due to The Regents and the U.S. Government contained in this Agreement.

3.2 Licensee shall promptly provide The Regents with a copy of each sublicense issued, collect and guarantee payment of all payments due The Regents from sublicensees and summarize and deliver all reports due The Regents from sublicensees.

3.3 In the event Licensee sublicenses any or all of the rights under this Agreement to any third party, it shall pay to The Regents a percentage of any non-royalty consideration received by Licensee for any such sublicense according to the following formula:

[**]% of non-royalty consideration received prior to January 1, 2002;

[**]% of non-royalty consideration received in the year 2002;

[**]% of non-royalty consideration received in the year 2003; and

[**]% of non-royalty consideration received in the year 2004 and all years

thereafter.

If the non-royalty consideration received by Licensee from a sublicensee is not cash, then this non-royalty consideration shall be valued through good faith negotiations between Licensee and The Regents. For the purposes of this Paragraph 3.3, the following shall not be considered to be non-royalty consideration:

3.3.1 the sublicensee's purchase of stock in Licensee at the same price as is (or would be) paid by an outside cash investor (but any premium price shall be included);

3.3.2 the sublicensee's purchase of products or services from Licensee at the same price as is (or would be) paid by an outside customer (but any premium price shall be included); and

3.3.3 the sublicensee's funding of Licensee's research and development expenses.

3.4 Upon termination of this Agreement for any reason, any sublicenses shall remain in effect and shall be assigned to The Regents, provided that:

3.4.1 Licensee was not in breach of this Agreement when entering into the sublicense;

3.4.2 the sublicensee is not in breach of its sublicense at the time of the termination of this Agreement;

3.4.3 the rights of The Regents in the sublicense are no less than the rights of The Regents under this Agreement;

3.4.4 the obligations of The Regents under the sublicense are no greater than the obligations of The Regents under this Agreement;

3.4.5 the obligations of the sublicensees are no less than those of Licensee hereunder with respect to the subject of the sublicense; and

3.4.6 the sublicensee is reputable and is qualified to commercially exploit Regents' Patent Rights.

4. PAYMENT TERMS

4.1 Paragraphs 1.2, 1.3, 1.4 and 1.8 define Combination Product, Licensed Method, Licensed Product and Regents' Patent Rights respectively, so that royalties are payable on products and methods covered by both pending patent applications and issued patents. Royalties will accrue in each country for the duration of Regents' Patent Rights in that country and are payable to The Regents when Combination Product and Licensed Product are invoiced or if not invoiced, when delivered to a third party.

4.2 Licensee shall pay to The Regents earned royalties quarterly on or before February 28, May 31, August 31 and November 30 of each calendar year. Each payment will be for earned royalties accrued within Licensee's most recently completed calendar quarter.

4.3 All monies due The Regents are payable in U.S. dollars. Licensee is responsible for all bank transfer charges. When Combination Product and Licensed Product are sold for monies other than U.S. dollars, Licensee shall first determine the earned royalty in the currency of the country in which Combination Product and Licensed Product were sold and then convert the amount into equivalent U.S. funds, using the exchange rate quoted in *The Wall Street Journal* on the last business day of the reporting period.

4.4 Royalties earned on sales occurring in any country outside the U.S. may not be reduced by any taxes, fees or other charges imposed by the government of such country on the payment of royalty income. Notwithstanding the foregoing, all payments made by Licensee in fulfillment of The Regents' tax liability in any particular country will be credited against earned royalties or fees due The Regents for that country.

4.5 If any patent or patent claim within Regents' Patent Rights is held invalid in a final decision by a court of competent jurisdiction and last resort and from which no appeal has or can be taken, all obligation to pay royalties based on that patent or claim or any claim patentably indistinct therefrom will cease as of the date of final decision. Licensee will not, however, be relieved from paying any royalties that accrued before the final decision or that are

based on another patent or claim not involved in the final decision or that are based on The Regents' property rights.

4.6 No royalties may be collected or paid on Combination Product and Licensed Product sold to the account of the U.S. Government, or any agency thereof, as provided for in the license to the Government.

4.7 In the event payments, rebillings or fees are not received by The Regents when due, Licensee shall pay to The Regents interest charges at a rate of [**] percent ([**]%) per annum. Interest is calculated from the date payment was due until actually received by The Regents.

4.8 For the avoidance of doubt, the parties hereby agree that, notwithstanding how many patent applications or patents under Regents' Patent Rights are utilized for a single Combination Produce, Licensed Product or Licensed Method, only one royalty will be earned on the sale of that Combination Product, Licensed Product or Licensed Method.

5. LICENSE-ISSUE FEE

Licensee shall pay to The Regents a license-issue fee of [**] dollars ($[**]) within [**] days after the Effective Date. This fee is non-refundable, non-cancelable and is not an advance against royalties.

6. LICENSE-MAINTENANCE FEE

Licensee shall also pay to The Regents a license-maintenance fee of [**] dollars ($[**]) beginning on the [**] anniversary of the Effective Date and continuing annually on the anniversary date of the Effective Date. Provided, however, the license-maintenance fee is not due on any anniversary of the Effective Date if on that date, Licensee is commercially selling Combination Product and/or Licensed Product and/or practicing the Licensed Method and paying an earned royalty to The Regents on the sales of Combination Product and/or Licensed Product and/or practicing the Licensed Method in an amount of at least [**] dollars ($[**]). License-maintenance fees are non-refundable and not an advance against earned royalties.

7. EARNED ROYALTIES AND MINIMUM ANNUAL ROYALTIES

7.1 Licensee shall also pay to The Regents an earned royalty of [**] percent ([**]%) of the Net Sales of Licensed Product or practice of Licensed Method. However, for Net Sales by a sublicensee, Licensee shall pay to The Regents an earned royalty equal to [**] percent ([**]%) of the royalty payable by the sublicensee to Licensee, but in no event shall the royalty rate payable to The Regents by Licensee be less than [**] percent ([**]%) and not more than [**] percent ([**]%) of the sublicensee's Net Sales.

7.2 Licensee shall, however, be entitled to reduce the earned royalty provided for in Paragraph 7.1 in the event that it becomes necessary for Licensee to license intellectual property rights covering ingredients, methods or devices owned by third parties to make, use or sell Combination Product or Licensed Product or practice Licensed Method, provided that the combined royalty payable to The Regents and the third parties exceeds [**] percent ([**]%) prior to the reduction set forth in this Paragraph 7.2. The reduction shall be equal to [**] the sum of the royalty rates due to such third parties. However, in no event shall the royalty rate payable to The Regents on Net Sales as provided for in Paragraph 7.1 be less than [**] percent ([**]%).

7.3 Notwithstanding anything contained herein, if a Licensed Product is a component of a Combination Product the Net Sales used to calculate earned royalties shall be determined as follows:

7.3.1 If the Licensed Product is sold independently from the Combination Product, then the gross invoice price for such Licensed Product to be used in the calculation of Net Sales in any given quarter will be the [**] of the Licensed Product when sold independently measured over such quarter.

7.3.2 If the Licensed Product is not sold independently from the Combination Product, then the Net Sales in any given quarter will be the percentage that the cost of the Licensed Product contributes to the Combination Product cost times the Net Sales of the Combination Product. However, in no event will the percentage that the cost of the Licensed Product contributes to the Combination Product be less than [**] percent ([**]%).

7.4 Licensee shall also pay to The Regents a minimum royalty for the life of Regents' Patent Rights, beginning with:

7.4.1 the first year of commercial sale of any Licensed Product or Combination Product; or

7.4.2 the first full calendar year after the [**] anniversary of the Effective Date, whichever is earlier, equal to the fees set forth below:

7.4.2.1 [**] thousand dollars ($[**]) due the first year;

7.4.2.2 [**] dollars ($[**]) due the second year;

7.4.2.3 [**] dollars ($[**]) due the third year; and each subsequent year for the life of The Regents' Patent Rights.

7.5 For the first year of commercial sales, Licensee's obligation to pay the minimum annual royalty will be pro-rated for the number of months remaining in that calendar year when commercial sales commence and will be due the following [**], to allow for crediting of the pro-rated year's earned

royalties. For subsequent years, the minimum annual royalty will be paid to The Regents by [**] of each year and will be credited against the earned royalty due for the calendar year in which the minimum payment was made.

8. DUE DILIGENCE

8.1 Licensee, upon execution of this Agreement, shall diligently proceed with the development, manufacture and sale of Combination Product or Licensed Product and shall earnestly and diligently endeavor to market the same within a reasonable time after execution of this Agreement and in quantities sufficient to meet market demands.

8.2 Licensee shall endeavor to obtain all necessary governmental approvals for the manufacture, use and sale of Combination Product or Licensed Product.

8.3 Licensee and/or its Affiliates and/or its sublicensees shall:

8.3.1 [**] within [**] from the Effective Date;

8.3.2 [**] within [**] from Effective Date;

8.3.3 [**] within [**] of [**]; and

8.3.4 [**] during the period of this Agreement.

8.4 If Licensee does not perform, or have performed, any of the above provisions, then, if Licensee does not exercise its right pursuant to Paragraph 8.7 herein, The Regents has the right and option to either terminate this Agreement or reduce Licensee's exclusive license to a non-exclusive license.

8.5 This right, if exercised by The Regents, supersedes the rights granted in Article 2 (Life of Patent Grant).

8.6 In addition to the obligations set forth above, Licensee and/or its sublicensees shall spend an aggregate of not less than [**] dollars ($[**]) per calendar year for the development of Combination Product or Licensed Product commencing with the year 2001.

8.7 It is understood that the foregoing commercialization obligations and milestones are based upon the parties' current reasonable expectations with regard to commercial development of Licensed Product, Combination Product and Licensed Method. If Licensee is unable to meet the foregoing commercialization obligations and milestones, then Licensee shall be entitled to an extension of each of the dates (which have not been met) by [**] months upon payment of [**] dollars ($[**]) to The Regents, provided that such payment is received by The Regents within [**] days of receipt of written notice by The Regents that the Licensee has not met a due diligence date. The Regents shall not exercise its rights to terminate this Agreement unless an extended date is not met. If Licensee itself, an Affiliate or sublicensee is unable to meet an extended date, Licensee shall be entitled to a second extension of each of the dates (which have not been met) by [**] months upon payment of [**] dollars ($[**]) to The Regents, provided that such payment is received by The Regents within [**] days of receipt of written notice by The Regents that Licensee has not met a due diligence date.

9. PROGRESS AND ROYALTY REPORTS

9.1 Beginning [**], and [**] thereafter, Licensee shall submit to The Regents a written progress report covering Licensee's and any Affiliate or sublicensee's activities related to the development and testing of all Combination Product and Licensed Product and the obtaining of the governmental approvals necessary for marketing. Progress reports are required for each Combination Product and Licensed Product until the first commercial sale of that Combination Product or Licensed Product occurs in the U.S. and shall be again required if commercial sales of such Combination Product or Licensed Product are suspended or discontinued.

9.2 Progress reports submitted under Paragraph 9.1 shall include, but are not limited to, the following topics:

[**].

9.3 Licensee has a continuing responsibility to keep The Regents informed of the small business entity status as defined by the U.S. Patent and Trademark Office of itself and its sublicensees and Affiliates.

9.4 Licensee shall report to The Regents in its immediately subsequent progress and royalty report the date of first commercial sale of a Combination Product and/or Licensed Product in each country.

9.5 After the first commercial sale of a Combination Product or Licensed Product anywhere in the world, Licensee shall make quarterly royalty reports to The Regents on or before each February 28, May 31, August 31 and November 30 of each year. Each royalty report will cover Licensee's most recently completed calendar quarter and will show:

9.5.1 the [**] and [**] of Combination Product and Licensed Product sold during the most recently completed calendar quarter;

9.5.2 the [**] of Combination Product and Licensed Product sold;

9.5.3 the [**] of Combination Product and Licensed Product;)

9.5.4 the [**]; and

9.5.5 the [**] used.

9.6 If no sale of Combination Product or Licensed Product has been made during any reporting period, a statement to this effect is required.

10. BOOKS AND RECORDS

10.1 Licensee shall keep accurate books and records showing all Combination Product and Licensed Product manufactured, used and/or sold under the terms of this Agreement. Books and records must be preserved for at least [**] years from the date of the royalty payment to which they pertain.

10.2 All records shall be available during normal business hours for inspection at the expense of The Regents by The Regents' Internal Audit Department or by a Certified Public Accountant selected by The Regents and in compliance with the other terms of this Agreement for the sole purpose of verifying reports and payments. Such inspector shall not disclose to The Regents any information other than information relating to the accuracy of reports and payments, made under this Agreement and other compliance issues. In the event that any such inspection shows an under reporting and underpayment in excess of five percent (5%) for any twelve (12) month period, then Licensee shall pay the cost of the audit as well as any additional sum that would have been payable The Regents had the Licensee reported correctly.

11. LIFE OF THE AGREEMENT

11.1 Unless otherwise terminated by operation of law or by acts of the parties in accordance with the terms of this Agreement, this Agreement will be in force from the Effective Date until the date of expiration of the last-to-expire patent licensed under this Agreement; or until the last patent application licensed under this Agreement is abandoned and no patent in Regents' Patent Rights ever issues.

11.2 Any termination of this Agreement will not affect the rights and obligations set forth in the following Articles and Paragraphs:

Article 3	Sublicenses
Article 10	Books and Records
Paragraph 11.2	Surviving Provisions
Article 14	Disposition of Combination Product and Licensed

	Product on Hand Upon Termination
Article 15	Use of Names and Trademarks
Article 20	Indemnification
Article 21	Notices
Article 24	Failure to Perform
Article 25	Governing Laws
Article 29	Secrecy
Article 30	Miscellaneous

12. TERMINATION BY THE REGENTS

If Licensee fails to perform or violates any term of this Agreement, then The Regents may give written notice of default ("Notice of Default") to Licensee. If Licensee fails to repair the default within [**] days after the effective date of Notice of Default, The Regents may terminate this Agreement and its licenses by a second written notice ("Notice of Termination"). If a Notice of Termination is sent to Licensee, this Agreement will automatically terminate on the effective date of that notice. Such termination will not relieve Licensee of its obligation to pay any fees owing at the time of termination and will not impair any accrued right or obligation of The Regents or Licensee. These notices are subject to Article 21 (Notices).

13. TERMINATION BY LICENSEE

13.1 Licensee has the right at any time to terminate this Agreement in whole or as to any portion of Regents' Patent Rights by giving notice in writing to The Regents. Such notice of termination will be subject to Article 21 (Notices) and termination of this Agreement will be effective sixty (60) days after the effective date of such notice.

13.2 Any termination under the above Paragraph 13.1 does not relieve Licensee of any obligation or liability accrued under this Agreement prior to termination or rescind any payment made to The Regents or anything done by Licensee prior to the time termination becomes effective. Termination does not affect in any manner any rights of The Regents arising under this Agreement prior to termination.

14. DISPOSITION OF COMBINATION PRODUCT AND LICENSED PRODUCT ON HAND UPON TERMINATION

Upon termination of this Agreement Licensee is entitled to dispose of all previously made or partially made Combination Product and Licensed Product, but no more, within a period

of [**] days provided that the sale of Combination Product and Licensed Product is subject to the terms of this Agreement, including but not limited to the rendering of reports and payment of royalties required under this Agreement.

15. USE OF NAMES AND TRADEMARKS

15.1 Nothing contained in this Agreement confers any right to use in advertising, publicity or other promotional activities any name, trade name, trademark or other designation of either party hereto including contraction, abbreviation or simulation of any of the foregoing. Unless required by law, the use by Licensee of the name "The Regents of the University of California" or the name of any campus of the University of California is prohibited. Notwithstanding the foregoing, Licensee may disclose and report that Licensee has this Agreement with The Regents after receiving prior approval from The Regents of the text of such disclosure, which approval will not be unreasonably withheld.

15.2 The Regents is free to release to the inventors and senior administrators employed by The Regents the terms and conditions of this Agreement. If such release is made, then The Regents shall give notice of the confidential nature and shall request that the recipient does not disclose such terms and conditions to others. If a third party inquires whether a license to Regents' Patent Rights is available, then The Regents may disclose the existence of this Agreement and the extent of the grant in Article 2 (Life of Patent Grant) to such third party, but will not disclose the name of Licensee or any other terms or conditions of this Agreement, except where The Regents is required to release information under either the California Public Records Act, a governmental audit requirement, or other applicable law.

16. LIMITED WARRANTY

16.1 The Regents warrants to Licensee that it has the lawful right to grant this license.

16.2 This license and the associated Invention are provided WITHOUT WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED. THE REGENTS MAKES NO REPRESENTATION OR WARRANTY THAT THE COMBINATION PRODUCT AND LICENSED PRODUCT OR LICENSED METHOD WILL NOT INFRINGE ANY PATENT OR OTHER PROPRIETARY RIGHT.

16.3 IN NO EVENT MAY THE REGENTS BE LIABLE FOR ANY INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES RESULTING FROM EXERCISE OF THIS LICENSE OR THE USE OF THE INVENTION OR COMBINATION PRODUCT AND LICENSED PRODUCT.

16.4 This Agreement does not:

16.4.1 express or imply a warranty or representation as to the validity or scope of any of Regents' Patent Rights;

16.4.2 express or imply a warranty or representation that anything made, used, sold, offered for sale or imported or otherwise disposed of under any license granted in this Agreement is or will be free from infringement of patents of third parties;

16.4.3 obligate The Regents to bring or prosecute actions or suits against third parties for patent infringement except as provided in Article 19 (Patent Infringement);

16.4.4 confer by implication, estoppel or otherwise any license or rights under any patents of The Regents other than Regents' Patent Rights as defined in this Agreement, regardless of whether those patents are dominant or subordinate to Regent's Patent Rights; or

16.4.5 obligate The Regents to furnish any know-how not provided in Regents' Patent Rights.

17. PATENT PROSECUTION AND MAINTENANCE

17.1 As long as Licensee has [**] patent costs as provided for in this Article 17 (Patent Prosecution and Maintenance), The Regents shall diligently endeavor to prosecute and maintain the U.S. and foreign patents comprising Regents' Patent Rights using counsel of its choice, and The Regents shall provide Licensee with copies of all relevant documentation so that Licensee may be informed of the continuing prosecution, and Licensee agrees to keep this documentation confidential. The Regents shall furnish to Licensee draft copies of proposed filings and

correspondence addressed to the U.S. Patent and Trademark Office concerning the Regents' Patent Rights whenever it is reasonably feasible to do so; give due consideration to the requests and recommendations from Licensee concerning the patent prosecution matters; and furnish to Licensee estimates of anticipated patent costs on a country-by-country basis. The Regents shall advise the Licensee about approaching deadlines for proposed filings, including foreign filings and other patent actions. However, The Regents' counsel will take instructions only from The Regents, and all patent applications and patents comprising the Regents' Patent Rights will be assigned solely to The Regents. In addition, under any circumstances, The Regents reserves the rights to instruct The Regents' counsel in order to preserve The Regents' Patent Rights.

17.2 The Regents shall use reasonable efforts to amend any patent application in advance of filing to include claims reasonably requested by Licensee to protect the products contemplated to be sold under this Agreement.

17.3 Licensee shall apply for an extension of the term of any patent included within Regents' Patent Rights if appropriate under the Drug Price Competition and Patent Term Restoration Act of 1984 and/or European, Japanese and other foreign counterparts of this Law. Licensee shall prepare all documents and The Regents agrees to execute the documents and to take additional action as Licensee reasonably requests in connection therewith.

17.4 If either party (in the case of The Regents, the Licensing Associate responsible for administration of this Agreement) receives notice pertaining to infringement or potential infringement of any issued patent included within Regents' Patent Rights under the Drug Price Competition and Patent Term Restoration Act of 1984 (and/or foreign counterparts of this Law), that party shall notify the other party within [**] days after receipt of notice of infringement.

17.5 Licensee shall [**] of preparing, filing, prosecuting and maintaining all U.S. and foreign patent applications contemplated by this Agreement; excepting, however, Licensee shall [**] percent ([**]%) of such costs for Regents' Patent Rights-Group B. Costs billed by The Regents' counsel will be [**] to Licensee and are due within [**] days of [**] by The Regents. These costs include patent prosecution costs for the Invention incurred by The Regents prior to the execution of this Agreement and any patent prosecution costs that may be incurred for patentability opinions, re-examination, re-issue, interferences or inventorship determinations.

Prior prosecution costs will be due upon execution of this Agreement and billing by The Regents and are at least approximately [**] dollars ($[**]) as of October 16, 2000.

17.6 Licensee may request The Regents to obtain patent protection on the Invention in foreign countries if available and if Licensee so desires. The Regents will provide Licensee with advance notice of such approaching deadlines. Licensee shall notify The Regents of its decision to obtain or maintain foreign patents not less than [**] days prior to the deadline for any payment, filing or action to be taken in connection therewith, provided that The Regents has provided Licensee with adequate advance notice of such approaching deadline. This notice concerning foreign filing must be in writing, must identify the countries desired and must reaffirm Licensee's obligation to underwrite the costs thereof. The absence of such a notice from Licensee to The Regents will be considered an election not to obtain or maintain foreign rights.

17.7 Licensee's obligation to underwrite and to pay patent prosecution costs will continue for so long as this Agreement remains in effect, but Licensee may terminate its obligations with respect to any given patent application or patent upon thirty (30) days written notice to The Regents. The Regents will use its best efforts to curtail patent costs when a notice of termination is received from Licensee. The Regents may prosecute and maintain such application(s) or patent(s) at its sole discretion and expense, but Licensee will have no further right or licenses thereunder. Non-payment of patent costs may be deemed by The Regents as an election by Licensee not to maintain application(s) or patent(s).

17.8 The Regents may file, prosecute or maintain patent applications at its own expense in any country in which Licensee has not elected to file, prosecute or maintain patent applications in accordance with this Article 17 (Patent Prosecution and Maintenance) and those applications and resultant patents will not be subject to this Agreement.

17.9 The Regents will give instruction to The Regents' patent counsel to forward all relevant patent prosecution documentation covered in Regents' Patent Rights to Licensee simultaneously when forwarding such documentation to The Regents as long as this Agreement is active. Licensee may request that The Regents supply estimates of patent expenses associated with the filing and prosecution of foreign and U.S. patents in Regents' Patent Rights, and The Regents shall make reasonable efforts to supply such information to Licensee on a timely basis.

Licensee may also request estimates of such expenses from The Regents patent counsel if Licensee desires to do so. The Regents will authorize and instruct its patent counsel to furnish such cost estimates to Licensee from time to time upon request by Licensee.

18. PATENT MARKING

Licensee shall mark all Combination Product and Licensed Product made, used or sold under the terms of this Agreement, or their containers, in accordance with the applicable patent marking laws.

19. PATENT INFRINGEMENT

19.1 If Licensee or The Regents' patent administrator responsible for the administration of the Regents' Patent Rights learns of the substantial infringement of any patent licensed under this Agreement, then it shall call The Regents' attention thereto in writing and provide The Regents with reasonable evidence of infringement. Neither party will notify a third party of the infringement of any of Regents' Patent Rights without first obtaining consent of the other party, which consent will not be unreasonably denied. Both parties shall use their best efforts in cooperation with each other to terminate infringement without litigation.

19.2 Licensee may request that The Regents take legal action against the infringement of Regents' Patent Rights. Such request must be in writing and must include reasonable evidence of infringement and damages to Licensee. If the infringing activity has not abated within [**] days following the effective date of request, The Regents then has the right to:

19.2.1 commence suit on its own account or

19.2.2 refuse to participate in the suit.

19.3 The Regents shall give notice of its election in writing to Licensee by the end of the [**] day after receiving notice of written request from Licensee. Licensee may thereafter bring suit for patent infringement, at its own expense, if and only if, The Regents elects not to commence suit and if the infringement occurred during the period and in a jurisdiction where Licensee had exclusive rights under this Agreement. If, however, Licensee elects to bring suit in accordance with this Paragraph, The Regents may thereafter join that suit at [**] expense. If The

Regents elects to bring suit, Licensee may join that suit at [**] expense. Licensee agrees not to bring suit for patent infringement without following the procedures of this Paragraph, and both parties agree to be bound by the outcome of a suit for patent infringement through the pendency of such a suit under this Paragraph.

19.4 Each party shall cooperate with the other in litigation proceedings instituted hereunder but at the expense of [**]. Litigation will be controlled by the party bringing the suit, except that The Regents may be represented by counsel of its choice in any suit brought by Licensee, and Licensee may be represented by counsel of its choice in any suit brought by The Regents.

20. INDEMNIFICATION

20.1 Licensee shall indemnify, hold harmless and defend The Regents, its officers, employees and agents; the sponsors of the research that led to the Invention; and the inventors of the patent applications and patents in Regents' Patent Rights and their employers against any and all claims, suits, losses, liabilities, damages, costs, fees and expenses resulting from or arising out of exercise of this license or any sublicense. This indemnification includes, but is not limited to, any product liability.

20.2 From and after the time when Licensee commences clinical trials using any Combination Product or Licensed Product, Licensee, at its sole cost and expense, shall insure its activities in connection with the work under this Agreement and obtain, keep in force and maintain insurance as follows or an equivalent program of self insurance.

20.3 Comprehensive or commercial form general liability insurance (contractual liability included) with limits as follows:

- Each Occurrence $[**]
- Products/Completed Operations Aggregate $[**]
- Personal and Advertising Injury $[**]
- General Aggregate (commercial form only) $[**]

The coverage and limits referred to under the above do not in any way limit the liability of Licensee. Licensee shall furnish The Regents with certificates of insurance showing compliance with all requirements. Certificates must:

- Provide for [**] days' advance written notice to The Regents of any modification.
- Indicate that The Regents has been endorsed as an additional Insured under the coverage referred to under the above.
- Include a provision that the coverage will be primary and will not participate with nor will be excess over any valid and collectable insurance or program of self-insurance carried or maintained by The Regents.

20.4 The Regents shall notify Licensee in writing of any claim or suit brought against The Regents in respect of which The Regents intends to invoke the provisions of this Article 20 (Indemnification). Licensee shall keep The Regents informed on a current basis of its defense of any claims under this Article 20 (Indemnification).

21. NOTICES

21.1 Any notice or payment required to be given to either party shall be deemed to have been properly given and to be effective:

21.1.1 on the date of delivery if delivered in person to the respective addresses given below or to another address as designated in writing by the party changing its prior address;

21.1.2 on the date of mailing if mailed by first-class certified mail, postage paid to the respective addresses given below or to another address as designated in writing by the party changing its prior address.; or

21.1.3 on the date of mailing if mailed by any global express carrier service that requires the recipient to sign the documents demonstrating the delivery of such notice of payment, to the respective addresses given below or to another address as designated in writing by the party changing its prior address.

In the case of Licensee:

Hermes Biosciences, Inc.
61 Airport Boulevard, Suite B
South San Francisco, CA 94080
Attention: V.P. Research Technology

In the case of The Regents:

The Regents of the University of California Office of Technology Transfer
1111 Franklin Street, 5th Floor
Oakland, CA 94607-5200
Attention: Executive Director
Research Administration and Technology Transfer
RE: UC Case Nos. [**]

22. ASSIGNABILITY

This Agreement may be assigned by The Regents, but is personal to Licensee and assignable by Licensee only with the written consent of The Regents, which consent will not be unreasonably withheld. Notwithstanding the foregoing, this Agreement may be assigned by Licensee upon notice to The Regents without consent to its successor-in -interest pursuant to a merger, consolidation, reorganization or transfer of substantially all of the business to which this Agreement relates; provided, however, that such successor-in-interest agrees to be bound by all of the terms and conditions hereof.

23. NO WAIVER

No waiver by either party of any default of this Agreement may be deemed a waiver of any subsequent or similar default. A suspension of duty under this Agreement due to force majeure shall not be for a period longer than one year.

24. FAILURE TO PERFORM

If either party finds it necessary to undertake legal action against the other on account of failure of performance due under this Agreement, then the prevailing party is entitled to reasonable attorney's fees in addition to costs and necessary disbursements.

25. 25. GOVERNING LAWS

THIS AGREEMENT WILL BE INTERPRETED AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF CALIFORNIA WITHOUT REGARD TO WHICH PARTY DRAFTED PARTICULAR PROVISIONS OF THIS AGREEMENT, but the scope and validity of any patent or patent application will be governed

by the applicable laws of the country of the patent or patent application. Disputes between the parties regarding this Agreement will utilize only courts within California for disputes that go to court.

26. PREFERENCE FOR U.S. INDUSTRY

Because this Agreement grants an exclusive right to use or sell the Invention in the U.S., Licensee agrees that any products sold in the U.S. embodying this Invention or produced through the use thereof will be manufactured substantially in the U.S.

27. GOVERNMENT APPROVAL OR REGISTRATION

Licensee shall notify The Regents if it becomes aware that this Agreement is subject to any U.S. or foreign government reporting or approval requirement. Licensee shall make all necessary filings and pay all costs including fees, penalties and all other out-of-pocket costs associated with such reporting or approval process.

28. EXPORT CONTROL LAWS

Licensee shall observe all applicable U.S. and foreign laws with respect to the transfer of Combination Product and Licensed Product and related technical data to foreign countries, including, without limitation, the International Traffic in Arms Regulations (ITAR) and the Export Administration Regulations.

29. SECRECY

29.1 With regard to confidential information ("Data"), which means any and all oral or written or tangible property or confidential ideas, inventions, information, data, materials, know-how or the like owned or controlled by either party and disclosed by or on behalf of one party to the other from time to time in connection with this Agreement. The party providing the Data shall endeavor to identify the Data disclosed hereunder, but the failure of such party to identify the Data as such shall not destroy the confidential status of the information, as defined below, which can be oral or written or both, received from either party regarding this Invention, the parties agree:

29.1.1 not to use Data of the other party except for the sole purpose of performing under the terms of this Agreement;

29.1.2 to safeguard Data of the other party against disclosure to others with the same degree of care as it exercises with its own data of a similar nature;

29.1.3 not to disclose Data of the other party to others (except to its employees, agents or consultants who are bound to such party by a like obligation of confidentiality) without the express written permission of the disclosing party, except that neither party shall be prevented from using or disclosing any Data that:

29.1.3.1 the receiving party can demonstrate by written records was previously known to it;

29.1.3.2 is now or becomes in the future, public knowledge other than through acts or omissions of the receiving party; or

29.1.3.3 is lawfully obtained by the receiving party from sources independent of the disclosing party; and

29.1.4 that the secrecy obligations of the receiving party with respect to Data will continue for a period ending [**] years from the termination date of this Agreement.

29.2 With regard to biological material received by Licensee from The Regents, if any, including any cell lines, vectors, genetic material, derivatives, products progeny or material derived therefrom ("Biological Material"), Licensee agrees:

29.2.1 not to use Biological Material except for the sole purpose of performing under the terms of this Agreement;

29.2.2 not to transfer Biological Material to others (except to its employees, agents or consultants who are bound to Licensee by like obligations conditioning and restricting access, use and continued use of Biological Material) without the express written permission of The Regents, except that Licensee is not prevented from transferring Biological Material that:

29.2.2.1 becomes publicly available other than through acts or omissions of Licensee; or

29.2.2.2 is lawfully obtained by Licensee from sources independent of The Regents;

29.2.3 to safeguard Biological Material against disclosure and transmission to others with the same degree of care as it exercises with its own biological materials of a similar nature;

29.2.4 to destroy all copies of Biological Material at the termination of this Agreement.

30. MISCELLANEOUS

30.1 The headings of the several sections are inserted for convenience of reference only and are not intended to be a part of or to affect the meaning or interpretation of this Agreement.

30.2 This Agreement is not binding on the parties until it has been signed below on behalf of each party. It is then effective as of the Effective Date.

30.3 No amendment or modification of this Agreement is valid or binding on the parties unless made in writing and signed on behalf of each party.

30.4 This Agreement embodies the entire understanding of the parties and supersedes all previous communications, representations or understandings, either oral or written, between the parties relating to the subject matter hereof. The Secrecy Agreements with The Regents covering UC Case No. [**] (UC Control No. [**]) dated [**]; UC Case No [**] (UC Control No. [**]) dated [**]; UC Case No. [**] (UC Control No. [**]) dated [**]; UC Case No. [**] (UC Control No. [**]) dated [**]; and UC Case No. [**] (UC Control No. [**]) dated [**], are hereby terminated.

30.5 In case any of the provisions contained in this Agreement is held to be invalid, illegal or unenforceable in any respect, that invalidity, illegality or unenforceability will not

affect any other provisions of this Agreement and this Agreement will be construed as if the invalid, illegal or unenforceable provisions had never been contained in it.

30.6 None of the provisions of this Agreement is intended to create any form of joint venture between the parties, rights in third parties or rights that are enforceable by any third party.

IN WITNESS WHEREOF, both The Regents and Licensee have executed this Agreement, in duplicate originals, by their respective and duly authorized officers on the day and year written.

HERMES BIOSCIENCES, INC.		**THE REGENTS OF THE UNIVERSITY OF CALIFORNIA**	
By:	/s/ John Park (Signature)	By:	/s/ Alan B. Bennett (Signature)
Name:	John Park (Please Print)	Name:	Alan B. Bennett
Title:	President	Title:	Executive Director Research Administration and Technology Transfer
Date:	10-23-00	Date:	November 1, 2000

FIRST AMENDMENT TO EXCLUSIVE LICENSE AGREEMENT

and

CO-EXCLUSIVE LICENSE AGREEMENT

BETWEEN THE REGENTS AND HERMES BIOSCIENCES, INC.

This first amendment ("First Amendment") is made this 6th day of October, 2003 ("Effective Date"), between The Regents of the University of California, a California corporation, having its statewide administrative offices at 1111 Franklin Street, 12th Floor, Oakland, California 94607-5200 ("The Regents") and Hermes Biosciences, Inc., a California corporation, having its principal place of business at 61 Airport Boulevard, Suite D, South San Francisco, California 94080 ("Licensee").

BACKGROUND

A. The Regents and Licensee entered into an Exclusive License Agreement for the technologies generally characterized as "[**] (UC Case No. [**])," [**]" (UC Case No. [**]), "[**]" (UC Case No. [**]) and Co-Exclusive License Agreement for technologies generally characterized as "[**]" (UC Case No. [**]) and "[**]" (UC Case No. [**], effective [**] (UC Control No. [**]) ("License Agreement"). The License Agreement granted Licensee an exclusive license to certain technologies covered by Regents' Patent Rights-Group A (UC Case Nos. [**]) and a co-exclusive license to certain technologies covered by Regents' Patent Rights-Group B (UC Case Nos. [**]).

B. Pursuant to Paragraph 2.2 of the License Agreement, an additional license to Regents' Patent Rights-Group B was first offered to California Recombinant Antibodies. Since a license agreement was not completed by California Recombinant Antibodies, an exclusive license to Regents' Patent Rights-Group B is now being offered to the Licensee.

C. The Regents and Licensee wish to amend the License Agreement as provided herein in order to grant exclusive rights to Licensee for Regents' Patent Rights-Group B.

****

THEREFORE, in view of the foregoing, the parties agree as follows:

I. LICENSE AMENDMENT FEE

1.1 Licensee shall pay to The Regents a license amendment fee of [**] dollars ($[**]) within [**] days after the Effective Date of this First Amendment. This fee is non-refundable, non-cancelable and is not an advance against royalties.

II. PAST PATENT PROSECUTION EXPENSES

2.1 Licensee shall pay to The Regents [**] patent prosecution costs for UC Case Nos. [**] (except for UC Case No. [**]) and UC Case No. [**]. These costs are due upon execution of this First Amendment and within [**] days of billing by The Regents and are at least approximately [**] dollars ($[**]).

III. DEFINITIONS

3.1 All definitions and paragraph numbers referred to in this First Amendment shall have the same meaning as in the License Agreement.

3.2 Paragraphs 1.6, 1.7 and 1.8 are deleted in their entirety and replaced with the following:

"1.6 "Regents' Patent Rights" means The Regents' interest in the subject matter claimed in:

UC Case Number	U.S. Application Number or U.S. Patent Number	Filing or Issue Date
[**]	[**]	[**]
[**]	[**]	[**]
[**]	[**]	[**]
[**]	[**]	[**]
[**]	[**]	[**]
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[**]	[**]	[**]
[**]	[**]	[**]

and continuing applications thereof including divisions and substitutions but excluding continuation-in-part applications to the extent that claims are not supported in the parent; any patents issuing from said applications including reissues, reexaminations and extensions; and any corresponding foreign applications or patents."

IV. LIFE OF PATENT GRANT

4.1 Paragraph 2.1 is deleted in its entirety and replaced with the following:

"2.1 Subject to the limitations set forth in this Agreement, The Regents grants to Licensee a world-wide exclusive license under Regents' Patent Rights to make, have made, use, sell, offer to sell and import Licensed Product and to practice Licensed Method to the extent permitted by law."

4.2 Paragraph 2.2 and any reference to it in the License Agreement is deleted in its entirety.

V. SUBLICENSES

5.1 Paragraph 3.1 is deleted in its entirety and replaced by the following:

"3.1 The Regents also grants to Licensee the right to issue sublicenses to third parties to make, have made, use, sell, offer to sell and import Licensed Product and to practice Licensed Method under Regents' Patent Rights as long as Licensee has current exclusive rights

thereto under this Agreement. To the extent applicable, sublicenses must include all of the rights of and obligations due to The Regents and the U.S. Government contained in this Agreement."

VI. PAYMENT TERMS

6.1 Paragraph 4.1 is deleted in its entirety and replaced by the following:

"4.1 Paragraphs 1.2, 1.3, 1.4 and 1.6 define Combination Product, Licensed Method, Licensed Product and Regents' Patent Rights respectively, so that royalties are payable on products and methods covered by both pending patent applications and issued patents. Royalties will accrue in each country for the duration of Regents' Patent Rights in that country and are payable to The Regents when Combination Product and Licensed Product are invoiced or if not invoiced, when delivered to a third party."

VII. PATENT PROSECUTION AND MAINTENANCE

7.1 Paragraph 17.5 is deleted in its entirety and replaced with the following:

"17.5 Licensee shall [**] of preparing, filing, prosecuting and maintaining all U.S. and foreign patent applications contemplated by this Agreement. Costs billed by The Regents' counsel will be [**] to Licensee and are due within [**] days of [**] by The Regents. These costs include any patent prosecution costs that may be incurred for patentability opinions, re-examination, re-issue, interference or inventorship determinations."

The License Agreement shall remain in full force and effect in accordance with its terms except as amended herein.

The Regents and Licensee have executed this First Amendment in duplicate originals by their respective and duly authorized officers, as evidenced by the signatures and dates shown below.

HERMES BIOSCIENCES, INC.	THE REGENTS OF THE UNIVERSITY OF CALIFORNIA
By: /s/ John Park (Signature)	By: /s/ Alan B. Bennett (Signature)
Name: John Park (Please Print)	Name: Alan B. Bennett
Title: President/CEO	Title: Executive Director

Research Administration and Technology Transfer

Date: 9-29-03	Date: October 6, 2003

SECOND AMENDMENT TO EXCLUSIVE LICENSE AGREEMENT

BETWEEN THE REGENTS AND HERMES BIOSCIENCES, INC.

This second amendment ("Second Amendment") is made this 13th day of September, 2006 ("Effective Date of Second Amendment"), between The Regents of the University of California, a California corporation, having its statewide administrative offices at 1111 Franklin Street, 12th Floor, Oakland, California 94607-5200 ("The Regents") and Hermes Biosciences, Inc., a California corporation, having its principal place of business at 61 Airport Boulevard, Suite D, South San Francisco, California 94080 ("Licensee").

BACKGROUND

A. The Regents and Licensee are parties to an Exclusive License Agreement with an effective date of November 1, 2000. UC Control No. [**] ("Agreement") pursuant to which The Regents granted the Licensee certain rights for the commercial development, use and sale of products from the Invention in accordance with the terms and conditions therein.

B. The Regents and Licensee executed an amendment to the Agreement ("First Amendment"). The purpose of the First Amendment was to grant exclusive rights to Licensee for Regents' Patent Rights Group B as defined therein.

C. The Regents and Licensee now wish to amend the Agreement to reflect certain changes to the diligence requirements, add milestone payments, and delay the start of the minimum annual royalty payments.

THEREFORE, in view of the foregoing, the parties agree as follows:

Article I Definitions

1.1 All definitions and paragraph members referred to in this Second Amendment have the same meaning as in the Agreement.

Article II Sublicenses

2.1 The following paragraph is added to Paragraph 3.3:

3.3.4 the amounts received from a sublicensee by Licensee as reimbursement of the patent prosecution costs paid by Licensee under Paragraph 17.5, except as may be otherwise agreed upon in writing by the parties.

Article III Earned Royalties and Minimum Annual Royalties

3.1 The heading for Article 7 is deleted in its entirety and replaced with the following:

---

7. "Earned Royalties, Minimum Annual Royalties, and Milestone Payments"

3.2 In Paragraph 7.4.2, Line 1, delete "[**]" and replace with "[**]".

3.3 The following paragraphs are added:

7.6 With respect to each Licensed Product or Combination Product, the Licensee will pay to The Regents the following non-refundable, non-creditable amounts:

7.6.1 [**] dollars ($[**]);

7.6.2 [**] dollars ($[**]); and

7.6.3 [**] dollars ($[**]).

7.7 For the avoidance of doubt, each of the milestone payments set forth in Paragraphs 7.6.1 through 7.6.3 will be payable with respect to each Licensed Product or Combination Product. Furthermore, each such milestone payment will be payable regardless of whether the applicable milestone event has been achieved by the Licensee, any Affiliate, or any sublicensee. If a payment is due to The Regents under Paragraph 7.6 and a payment is due to The Regents under Paragraph 3.3 for the same milestone event in connection with the same Licensed Product or Combination Product, then Licensee shall pay The Regents whichever amount is larger within [**] days of the milestone event.

7.8 All milestone payments are due to The Regents within [**] days of the occurrence of the applicable milestone event.

Article IV Due Diligence

4.1 Article 8 is deleted in its entirety and replaced with the following:

"8. DUE DILIGENCE

8.1 Licensee, upon execution of this Agreement, shall diligently proceed with the development, manufacture and sale of Combination Product or Licensed Product and shall earnestly and diligently endeavor to market the same within a reasonable time after execution of this Agreement and in quantities sufficient to meet market demands.

8.2 Licensee shall endeavor to obtain all necessary governmental approvals for the manufacture, use and sale of Combination product or Licensed Product.

8.3 For Licensed Product or Combination Product, Licensee and/or its Affiliates and/or its sublicensees shall;

8.3.1 [**] no later than [**];

8.3.2 if not filed by [**] no later than [**];

8.3.3 [**] no later than [**];

8.3.4 if not filed by [**] no later than [**];

8.3.5 [**] within [**] months of [**] for the Combination Product or Licensed Product but no later than [**] within [**] months of [**] for such Combination Product or Licensed Product but no later than [**];

8.3.6 if not marketed by [**] within [**] months of [**] for the Combination Product or Licensed Product but no later than [**]; and

8.3.7 [**] during the life of this Agreement.

8.3.8 If Licensee does not perform, or have performed, any of the provisions in 8.3.1 through and including 8.3.7, then if Licensee does not exercise its right to extend the diligence dates pursuant to Paragraph 8.3.9, The Regents has the right and option to either terminate this Agreement or reduce Licensee's exclusive license to a non-exclusive license. This right, if exercised by The Regents, supersedes the rights granted in Article 2 (Life of Patent Grant).

8.3.9 In the event that the Licensee is unable to meet any of the deadlines set forth in Paragraphs 8.3.1 through 8.3.6, the Licensee may request an extension of such missed deadline. Each such request shall be made in writing at least [**] days prior to the deadline that the Licensee will be unable to meet and will be accompanied by: (i) a statement of the deadline for which the extension is being sought; and (ii) payment of an extension fee ("Extension Fee") of [**] dollars ($[**]). Upon receipt of such request and payment, The Regents shall grant an extension of the missed deadline, for which an extension is being sought, for [**].

Each such missed deadline may be extended, with payment of the Extension Fee, for a total of [**] years from the original missed deadline. For the sake of clarity, any extension granted by The Regents is applicable only to the missed deadline for which the extension is being sought and does not apply to any other deadline.

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8.4 Notwithstanding Paragraph 8.3.8, if the Licensee is selling a Licensed Product or Combination Product at the time of termination, then the Licensee will have the right to a limited non-exclusive license under The Regents' Patent Rights but only to the extent required to continue selling such Licensed Product or Combination Product provided that such sales are subject to the terms of this Agreement, including but not limited to the rendering of reports and payment of royalties as required under this Agreement.

This Agreement shall remain in full force and effect in accordance with its terms except as amended herein.

In witness whereof, The Regents and Licensee have executed this Second Amendment in duplicate originals by their respective and duly authorized officers on the day and year written.

HERMES BIOSCIENCES, INC.		THE REGENTS OF THE UNIVERSITY OF CALIFORNIA	
By:	/s/ John Park (Signature)	By:	/s/ William T. Tucker (Signature)
Name:	John Park (Please print)	Name:	William T. Tucker
Title:	President	Title:	Executive Director Research Administration and Technology Transfer
Date:	9/11/06	Date:	September 13, 2007

UNIVERSITY OF CALIFORNIA

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SANTA BARBARA • SANTA CRUZ

OFFICE OF THE PROVOST AND EXECUTIVE VICE PRESIDENT –
ACADEMIC AND HEALTH AFFAIRS

OFFICE OF TECHNOLOGY TRANSFER
1111 Franklin Street, 5th Floor
Oakland, California 94607-5200
Web Site: www.ucop.edu/ott/
Tel: (510) 587-6000
Fax: (510) 587-6090

May 31,2007
Via Federal Express
(650) 873-2583

IN DUPLICATE

Raymond Poon, Ph.D.
Vice President, Business Development
Hermes Biosciences, Inc.
61 Airport Boulevard, Suite D
South San Francisco, CA 94080

RE: Letter Agreement for Repayment of Amounts
Due The Regents under:
Exclusive License Agreement
UC Agreement Control No. [**]

Dear Dr. Poon:

As we discussed on May 22, 2007, Hermes has [**] patent prosecution payments under the above referenced Exclusive License Agreement ("License Agreement"). Exhibit A to this Letter Agreement shows the outstanding amount currently due to The Regents for such patent prosecution matters ($[**]) ("Preliminary Amount Due"). The Preliminary Amount Due includes accrued interest as of May 22, 2007, as provided for in Paragraph 4.7 of the License Agreement. Hermes shall pay the Preliminary Amount Due plus (1) any other amounts which may be billed to Hermes by The Regents for Interference No. [**] plus any interest accruing on such amounts; and (2) any additional interest accruing on the Preliminary Amount Due as a result of the schedule in the Payment Plan, as provided for in Exhibit B ("Payment Plan"). Notwithstanding anything to the contrary in this letter, Hermes may make any payment provided for in the Payment Plan before the scheduled due date.

For avoidance of doubt, beginning June 1, 2007, Hermes shall pay any and all amounts billed to Hermes by The Regents for patent prosecution matters unrelated to Interference No. [**] as provided for in Article 17 (Patent Prosecution and Maintenance) of the License Agreement.

As provided for in Article 12 (Termination by The Regents), if Hermes fails to make any payments as required under the License Agreement, which includes the terms and provisions of this Letter Agreement, then The Regents may give written notice of default to Hermes. If Hermes fails to repair the default within [**] days after the effect date of Notice of Default, The Regents may terminate the License Agreement and its licenses by a second written notice ("Notice of Termination").

Please acknowledge your acceptance of these terms by signing this Letter Agreement and the duplicate original in the spaces provided and return both to this office. I will then have both originals executed on behalf of The Regents and return one fully executed original to you.

Regards,

/s/ Patricia Anderson
Patricia Anderson Cotton, Ph.D.
Director, Business Development &
Intellectual Property Management

Encl: Exhibit A (Preliminary Amount Due)
Exhibit B (Payment Plan)

c: Chief Financial Officer Fraysse
Director Kirschbaum, OTM, UCSF

AGREED:

HERMES BIOSCIENCES, INC.:

By: /s/ Raymond Poon
(Signature)

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA:

By: /s/ William T. Tucker
(Signature)

Name:	Raymond Poon (Please print)	Name:	William T. Tucker
Title:	Vice President Business Development	Title:	Executive Director Research Administration and Technology Transfer
Date:	June 5, 2007	Date:	June 6, 2007

EXHIBIT A
Preliminary Amount Due
Hermes Biosciences, Inc.
UC Agreement [**]
Rebilling Interest Calculation
As of 5/22/2007

	Days Past Due	Interest (10% per annual)	Payment	Cummulative Total
[**] [**]	[**]	[**]		[**]
[**] [**]	[**]	[**]		[**]
[**] [**]	[**]	[**]		[**]
[**] [**]	[**]	[**]		[**]
[**] [**]	[**]	[**]		[**]
[**] [**]	[**]	[**]		[**]
[**] [**]	[**]	[**]		[**]
[**] [**]	[**]	[**]		[**]
[**] [**]	[**]	[**]		[**]
[**] [**]	[**]	[**]		[**]
[**] [**]	[**]	[**]		[**]
[**]				
		[**]		
			Total amount due	[**]

Exhibit B

Hermes Biosciences, Inc.

Patent Prosecution Payment Plan to the University of California

Time and/or Event	Amount
[**]	$ [**]
Upon [**] (estimated to be [**]) but no later than [**]	$ [**]
Monthly payment of $[**] beginning [**] and ending [**]	$ [**]
Upon [**] (estimated to be paid end of [**] but no later than [**]	$ [**]
Monthly payment of $[**] Beginning [**] and ending [**]	$ [**]
Upon [**] but no later than [**]	$ [**]
Remaining sum by [**]	To be determined

This fourth amendment ("Fourth Amendment") is made this 28th day of September, 2007 ("Effective Date of Fourth Amendment"), between The Regents of the University of California, a California corporation, having its statewide administrative offices at 1111 Franklin Street, 12th Floor, Oakland, California 94607-5200 ("The Regents") and Hermes Biosciences, Inc., a California corporation, having its principal place of business at 61 Airport Boulevard, Suite D, South San Francisco, California 94080 ("Licensee").

BACKGROUND

A. The Regents and Licensee are parties to an Exclusive License Agreement with an effective date of November 1, 2000, UC Control No. [**] ("Agreement") pursuant to which The Regents granted the Licensee certain rights for the commercial development, use and sale of products from the Invention in accordance with the terms and conditions therein.

B. The Regents and Licensee executed a First Amendment to the Agreement- The purpose of this amendment was to grant exclusive rights to Licensee for Regents' Patent Rights Group B as defined therein.

C. The Regents and Licensee executed a Second Amendment to the Agreement. The purpose of this amendment was to amend the diligence requirements, add milestone payments and delay the start of the minimum annual royalty payments.

D. The Regents and Licensee executed a third amendment to the Agreement in the form of a letter agreement. The puipose of this amendment was to provide for a payment plan under which Hermes would reimburse The Regents for an)' amounts billed to Hermes for Interference No. [**] and prior prosecution costs.

E. Certain patent rights owned or controlled by The Regents (UC Case No. [**]) along with certain patent rights owned or controlled by [**] are involved in Interference No. [**] ("Interference").

F. [**] is a sublicensee of Licensee under the Exclusive License Agreement by virtue of an Interim development Agreement dated September 21, 2001, as currently amended ("Hermes-[**] Agreement").

G. The Regents, Licensee, and [**] have executed an agreement ("Agreement and Amendment") to settle all claims which had been brought in Interference No. [**].

H. Under the Agreement and Amendment, [**] grants to The Regents a non-exclusive license to conduct Activities under the [**] Patent Rights. [**] also grants to The Regents under such non-exclusive license the right to grant sublicenses to one third party and its affiliates as affiliate is defined in the Agreement and Amendment (see definition of Agreement and Amendment Affiliate below). Each such sublicensee may grant further sublicenses. The rights may not be further sublicensed except that The Regents and any sublicensee or further sublicensee may grant educational, non-profit, or governmental organizations the right to conduct Activities under the [**] Patent Rights for educational and research purposes only.

I. Under the Agreement and Amendment, The Regents grants to [**] a non-exclusive license to conduct Activities under the Regents' Patent Rights Licensed to [**]. The Regents also grants to [**] under such non-exclusive license the right to grant sublicenses to one third party and its affiliates as affiliate is defined in the Agreement and Amendment (see definition of Agreement and Amendment Affiliate below). Each such sublicensee may grant further sublicenses. The rights may not be further sublicensed except that [**] and any sublicensee or further sublicense may grant educational, non-profit, or governmental organizations the right to conduct Activities under the Regents' Patent Rights Licensed to [**] for educational and research purposes only.

J. The Regents and Licensee now wish to amend the Agreement to grant Hermes a sublicense to the [**] Patent Rights and to amend certain other provisions of the Agreement in accordance with the terms of the Agreement and Amendment.

****

THEREFORE, in view of the foregoing, the parties agree as follows:

Article I. Definitions

1.1 All definitions and paragraph members referred to in this Fourth Amendment have the vsame meaning as in the Agreement.

1.2 The following definitions are added:

1.7 "[**] Patent Rights" means U.S. Patent Application No. [**], U.S. Patent Application No. [**], U.S. Patent Application [**] and U.S. Patent No. [**] and all United States applications and patents claiming priority thereto and any reissues, re-examinations, or extensions thereof, but excluding solely those claims (if any) of any continuation-in-part application filed after the execution date of the Agreement and Amendment, provided that each such claim is supported in part under 35 U.S.C. § 112 by new matter first described in the continuation-in-part application and therefore such claim is not entitled to the benefit of priority based on an earlier filing date of one of the foregoing applications or patents.

1.8 "Activities" means researching, developing, having developed, making, having made, using, offering for sale, selling, promoting, having promoted, distributing, commercializing, marketing, and importing for human or veterinary pharmaceutical, therapeutic, or prophylactic use.

1.9 "Regents' Patent Rights Licensed to [**]" means U.S. Patent No. [**] U.S. Patent Application No. [**], U.S. Patent Application No. [**] and U.S. Patent [**] and all United States applications and patents claiming priority thereto and any reissues, re-examinations, or extensions thereof, but excluding solely those claims (if any) of any continuation-in-part application filed after the execution date of the Agreement and Amendment, provided that

each such claim is supported in part under 35 U.S.C. § 112 by new matter first described in the continuation-in-part application and therefore such claim is not entitled to the benefit of priority based on an earlier filing date of one of the foregoing applications or patents.

1.10 "Licensed Rights" means [**] Patent Rights and Regents' Patent Rights.

1.11 "Agreement and Amendment Affiliate" means an affiliate as defined in the Agreement and Amendment, to wit any entity which, directly or indirectly. Controls the party, is Controlled by the party, or is under common Control with the party. For purposes of this Fourth amendment final definition, "Control" means (i) possession of at least fifty percent (50%) of the voting stock or other ownership interest of the other entity; (ii) the power to direct or cause the direction of the management and policies of the other entity; (iii) the power to elect or appoint at least fifty percent (50%) of the members of the governing body of the other entity through the ownership of the outstanding voting securities or by contract or otherwise; or (iv) in any country where the local law will not permit foreign equity participation of a majority, ownership or

control of the maximum percentage of such outstanding stock or voting rights permitted by local law.

1.12 "[**]" means a product as defined in Section 1.10 of the Hermes-[**] Agreement. A copy of the definitions from the Hermes-[**] Agreement is attached.

1.13 "Hermes-[**] Agreement" is defined in Paragraph F of the Background.

1.3 The following definitions are deleted in their entirety and replaced with the following:

1.2 "Combination Product" means a product that consists of the Licensed Product combined with other active components not subject to this Agreement that:

1.2.1 are not covered by Licensed Rights;

1.2.2 the manufacture, sale, use or import by itself does not contribute to the infringement of Licensed Rights;

1.2.3 can be sold separately by Licensee, an Affiliate or sublicense.

1.3 "Licensed Method" means any method that is covered by Licensed Rights, or the use of which would constitute, but for the license granted to Licensee under this Agreement, an infringement of any pending or issued claim within Licensed Rights.

1.4 "Licensed Product" means any material that is either covered by Licensed Rights, that is identified or produced by the Licensed Method, or that the use of which would constitute, but for the license granted to Licensee under this Agreement, an infringement of any pending or issued claim within Licensed Rights.

1.5 "Net Sales" means the total of the gross invoice prices from the Final Sale of Licensed Product to an independent, unaffiliated third party or Licensed Method performed by Licensee, an Affiliate or a sublicensee, less the sum of the following actual and customary deductions where applicable: cash, trade or quantity discounts; sales, use, tariff, import/export duties or other excise taxes imposed on particular sales (excepting value added taxes or income
taxes): transportation charges, including insurance; and allowances or credits to customers because of rejections or returns. Final Sale means the sale which is the last act of infringement of Licensed Rights within the control of Licensee, an Affiliate or sublicensee, regardless of whether Licensee, an Affiliate or sublicensee had control over prior infringing acts. For purposes of calculating Net Sales, any distribution or transfer among Licensee, an Affiliate or sublicensee for end use by Licensee, an Affiliate or sublicensee (which event is the last act of

infringement of Licensed Rights) will be considered a Final Sale at the price normally charged to independent, unaffiliated third parties.

Article II. Life of Patent Grant

2.1 The following paragraphs are added;

2.5 Notwithstanding Paragraph 2.1, the exclusive license granted to Licensee in Paragraph 2.1 is reduced to a non-exclusive license to the extent of the grant of rights to [**] by The Regents to conduct Activities under the Agreement and Amendment. The grant of rights to [**] by The Regents is defined in Paragraph I of the Background.

2.6 Subject to the limitations set forth in this Agreement, The Regents grants to Licensee a non-exclusive license to make, have made, use, sell, offer to sell and import Licensed Product and to practice Licensed Method to the extent permitted by law under its non-exclusive license under the [**] Patent Rights granted under the Agreement and Amendment. The rights granted to The Regents by [**] are defined in Paragraph H of the Background.

Article III. Sublicenses

3.1 The following two paragraphs are added at the end of Paragraph 3.1:

> The Regents also grants to Licensee the right to issue sublicenses to third parties to make, have made, use, sell, offer to sell and import Licensed Product and to practice Licensed Method under [**] Patent Rights as long as Licensee has rights thereto under this Agreement. The rights may not be further sublicensed by such third parties except that each such third party sublicensee may grant

educational, nonprofit, or governmental organizations the right to conduct Activities under the [**] Patent Rights for educational and research purposes only."

"Notwithstanding the foregoing, if, but only if, sublicensee is an Agreement and Amendment Affiliate, Licensee may grant its Agreement and Amendment Affiliate the right to grant further sublicenses. The rights may not be further sublicensed except that each such sublicensee of the Agreement and Amendment Affiliates may grant educational, non-profit, or governmental organizations the right to conduct Activities under the [**] Patent Rights for educational and

research purposes only To the extent applicable, all such sublicenses must include all of the rights of and obligations due to The Regents contained in this Agreement."

Article IV. Payment Terms

4.1 Paragraph 4.1 is deleted in its entirety and replaced with the following:

"4.1 Paragraphs 1.2, 1.3, 1.4 and 1.10 define Combination Product, Licensed Method, Licensed Product and Licensed Rights respectively, so that royalties are payable on products and methods covered by both pending patent applications and issued patents. Royalties will accrue in each country for the duration of Licensed Rights in that country and are payable to The Regents when Combination Product and License Product are invoiced or if not invoiced, when delivered to a third party."

4.2 Paragraph 4.5 is deleted in its entirety and replaced with the following:

"4.5 If any patent or patent claim within Licensed Rights is held invalid in a final decision by a court of competent jurisdiction and last resort and from which no appeal has or can be taken, all obligation to pay royalties based on that patent or claim or any claim patentably indistinct therefrom will cease as of the date of final decision. Licensee will not, however, be relieved from paying any royalties that accrued before the final decision or that are based on another patent or claim not involved in the final decision or that are based on The Regents' property rights."

4.3 Paragraph 4.8 is deleted in its entirety and replaced with the following:

"4.8 For the avoidance of doubt, the parties hereby agree that, notwithstanding how many patent applications or patents under Licensed Rights are utilized for a single Combination Product. Licensed Product or Licensed Method, only one royalty will be earned on the sale of that Combination Product, Licensed Product or Licensed Method."

Article V. Earned Royalties, Minimum Annual Royalties and Milestone Payments

5.1 The following paragraph is added at the end of Paragraph 7.1:

"Notwithstanding the above, in the event that a Licensed Product or Licensed Method is covered only by [**] Patent Rights and/or Regents' Patent Rights Licensed to [**] and is not covered by any other rights granted by The Regents to Licensee under this Agreement, then

Licensee shall pay to The Regents an earned royalty of [**] percent ([**]%) of the Net Sales of such Licensed Product or the practice of such Licensed Method. For Net Sales of such Licensed Product or the practice of such Licensed Method by a sublicensee, Licensee shall pay to The Regents an earned royalty equal to [**] percent ([**]%) of the royalty payable by the sublicensee to Licensee, but in no event shall the royalty rate payable to The Regents by Licensee for such Licensed Product or the practice of such Licensed Method be less than [**] percent ([**]%) and not more than [**] percent ([**]%) of the sublicensee's Net Sales."

Article VI. Diligence

6.1 Paragraph 8.4 is deleted in its entirety and replaced with the following:

"8.4 Notwithstanding Paragraphs 8.3.8 and 8.5.3, if the Licensee is selling a Licensed Product or Combination Product at the time of termination, then the Licensee will have the right to a limited non-exclusive license under Licensed Rights but only to the extent required to continue selling such Licensed Product or Combination Product provided that such sales are subject to the terms of this Agreement, including but not limited to the rendering of reports and payment of royalties as required under this Agreement."

6.2 Paragraph 8.5 is added:

"8.5 Notwithstanding any other provision of Article 8 of this Agreement, the following diligence terms shall apply to [**] when [**] or its assignee is a sublicensee of Licensee under this Agreement:

8.5.1 Licensee shall diligently proceed with the development manufacture and sale of Licensed Product or Combination Product and shall earnestly and diligently endeavor to market the same and in quantities sufficient to meet market demands. Licensee will be considered to be diligently proceeding with the development, manufacture and sale of Licensed Products or Combination Products so long as it is engaged in any of the following safe-harbor activities: (i) [**].

8.5.2 Licensee may satisfy its obligations set forth in Section 8.5.1 through the activities of its Affiliates and sublicensees.

8.5.3 If Licensee does not perform or have performed any of the diligence requirements set forth above, The Regents has the right and option to terminate this Agreement provided that the Licensee has not met the diligence requirements set forth in Paragraphs 8.3.1 through and including 8.3.7 and has not exercised its right to extend the diligence dates pursuant to Paragraph 8.3.9. "

Article VII. Life of the Agreement

7.1 Paragraph 11.1 is deleted in its entirety and replaced with the following:

"11.1 Unless otherwise terminated by operation of law or by acts of the parties in accordance with the terms of this Agreement, this Agreement will be in force from the Effective Date until the date of expiration of the last-to-expire patent licensed under this Agreement; or until the last patent application licensed under this Agreement is abandoned and no patent in Licensed Rights ever issues."

Article VIII. Limited Warranty

8.1 The following paragraphs are deleted in their entirety and replaced with the following:

16.4.1 express or imply a warranty or representation as the validity or scope of any of Licensed Rights;

16.4.4 confer by implication, estoppel or otherwise any license or rights under any patents of The Regents other than Licensed Rights as defined in this Agreement, regardless of whether those patents are dominant or subordinate to Licensed Rights;

16.4.5 obligate The Regents to furnish any know-how not provided in Licensed Rights.

Article IX. Patent Prosecution and Maintenance

9.1 The first sentence of Paragraph 17.5 is deleted in its entirety and replaced with the following:

"17.5 Licensee shall [**] of preparing, filing, prosecuting and maintaining all U.S. and foreign patent applications in Regents' Patent Rights."

9.2 The following paragraph is added;

"17.10 In regard to [**] Patent Rights, The Regents does not control patent prosecution of such rights. However, The Regents will inform Licensee of any material matters related to the [**] Patent Rights which have been communicated to The Regents by [**] in accordance with the Agreement and Amendment and Licensee agrees to keep such information confidential. As provided for in the Agreement and Amendment, in the event that [**] wishes to abandon any [**] Patent Rights, [**] shall give advance written notice to The Regents. Upon receipt of [**] notice, The Regents shall inform Licensee of [**] intent and The Regents will require [**] to maintain such [**] Patent Rights, provided that Licensee agrees in writing to reimburse The Regents for the costs involved in further prosecuting or maintaining such patent rights. Licensee's obligation to pay such costs will continue for so long as this Agreement remains in effect, but Licensee may terminate its obligations with respect to any given patent application or patent within [**] Patent Rights upon [**] days written notice to The Regents. The Regents may prosecute or maintain such application(s) or patent(s) at its sole discretion and expense, but Licensee will have no further right or licenses thereunder. Non-payment of patent costs may be deemed by The Regents as an election by Licensee not to maintain such application(s) or patent(s)."

Article X. Indemnification

10.1 The following paragraph is added at the end of Paragraph 20.1:

"Licensee shall, and shall require that its sublicensees of [**] Patent Rights, indemnify, hold harmless and defend The Regents, its officers, employees and agents; [**], its Affiliates, and their officers, directors, employees and agents; and the inventors of any invention claimed in [**] Patent Rights against any and all claims, suits, losses, liabilities, damages, costs, fees and expenses resulting from or arising out of exercise of this license to [**] Patent Rights or any sublicense to [**] Patent Rights. This indemnification includes, but is not limited to, any product liability."

remainder of page left blank deliberately-

Article XI. Secrecy

11.1 The following paragraph is added:

"29.3 In Section 6 of the Agreement and Amendment, Licensee, [**] and The Regents agreed to certain confidentiality provisions regarding the terms of the Agreement and Amendment. To the extent such terms are disclosed in this Agreement, Licensee and The Regents will follow the provisions of Section 6 of the Agreement and Amendment."

This Agreement shall remain in full force and effect in accordance with its terms except as amended herein.

In witness whereof, The Regents and Licensee have executed this Fourth Amendment in duplicate originals by their respective and duly authorized officers on the day and year written.

HERMES BIOSCIENCES, INC.:		THE REGENTS OF THE UNIVERSITY OF CALIFORNIA:	
By:	/s/ Dmitri B. Kirpotin (Signature)	By:	/s/ William T. Tucker (Signature)
Name:	Dmitri B. Kirpotin (Please print)	Name:	William T. Tucker
Title:	Vice President, Pharmaceutical R&D	Title:	Executive Director Research Administration and Technology Transfer
Date:	9/26/2007	Date:	September 28, 2007

DEFINITIONS FROM THE HERMES-[**] AGREEMENT

1. Definitions. For the purposes of this IDA, the following terms will have the respective meanings set forth below:

1.1 "Act" will mean the United States Food Drug and Cosmetic Act 21 U.S.C. 5 **[illegible]** from time to time, and the regulations promulgated the ourder.

1.2 "Affiliate" will mean a corporation or other entity that directly, or indirectly through one or more intermediaries, controls, is controlled by, or is under common control with, the designated party, but only for so long as the relationship exists. "Control" shall mean ownership of shares of stock having at least 50% of the voting power entitled to vote for the election of directors in the case of a corporation.

1.3 "Confidential Information" will mean in the case of Hermes Information disclosed by Hermes to [**] concerning the Targeting Technology, the **[illegible]** Technology, and the Micellar Conjugation Technology as such, or the use thereof, owned by or licensed to Hermes prior to the date of the Confidentiality Agreement or developed by Hermes after the date of the Confidentiality Agreement **[illegible]** the Program are without reference in or use of any Program Information or [**] Confidential Information, and (ii) in the case of [**], information disclosed by [**] to Hermes concerning the System (including the incorporation of drug into the System), or the use or manufacture thereof or otherwise useful to the Program, owned by or licensed to [**] prior to the date of the Confidentiality Agreement or developed by [**] after the date of the Confidentiality Agreement outside the Program and without reference to or use of any Program Information or Hermes Confidential Information. Confidential Information will not include any information which is (i) now in the public domain or subsequently enters the public domain without fault on the part of the receiving party; (ii) known by the receiving party from its own sources, as evidenced by the receiving party's written records made prior to the date of the Confidentiality Agreement; (iii) received from any third party not under any obligation to keep such information confidential; or (iv) proven by the receiving party to have been independently developed by the other party without the use of the other party's Confidential Information.

1.4 "Early State Program Plan" will mean a plan approved by the JDC for the Program activities through the completion of the first Phase I clinical trial of a Product.

1.5 "Effective Date" will mean the first date on which this IDA is executed by both parties.

1.6 "GMPs" will mean current Good Manufacturing Practices as defined from time to time by the Act and as related to regulations or any successor laws or regulations governing the manufacture, storage, handing or control of the Targeting Technology or internalizing Technology in the United States.

1.7 "[**]" will mean Hermes' proprietary [**] solely to the extent that it relates to [**].

1.8 "Joint Development Committee" and "JDC" will mean the joint development committee described in Section 2.1, below.

1.9 "[**]" will mean the [**] used by Hermes and/or the National Cancer Institute for [**] as of the Effective Date.

1.10 "Product" will mean a product developed under the Program which is composed of the [**] Technology and the [**] Technology combined with a System containing doxorubicin, with or without the [**] Technology, or another product that is substantially identical to Product; for example any product in a different strength (i.e., a different amount of active ingredient delivered in the same pattern) or having only cosmetic changes such as size, color, shape, etc., or similar nontherapeutic changes **[illegible]**.

1.11 "Program" will mean all activities undertaken by either or both parties in accordance with the terms hereof for the development of any Product, including regulatory, pre-clinical and clinical activities. Program includes the activities conducted pursuant to the Early Stage Program Plan.

1.12 "Program Information" will mean know-how, ideas, trade secrets, inventions (including patents covering such inventions), data, technology and information, including improvements and modifications to any thereof, processes and analytical methodology used in development, testing, analysis and manufacture, and medical, clinical, toxicological and other scientific data developed or acquired by either party under, in connection with or as a result of the Program. Notwithstanding the foregoing, Program Information will not include trademarks.

1.13 “System” will mean a sterically stabilized, pegylated liposomal system for the delivery of drugs. The term “System” will include anything incorporated in or used in connection with, or which is an attribute of, a Product, or the development thereof, including anything which affects or may affect the [**] or [**] of a therapeutic agent, or the [**] or use of

a [**], including but not limited to, [**], in the System, provided, however that “System” shall not include the [**] Technology, the [**] Technology or the [**] Technology.

1.14 “[**] Technology” will mean Hermes’ proprietary [**] technology consisting of [**] for therapeutic targeted delivery.

1.15 “Term Sheet” will mean the document attached hereto as Exhibit A which sets forth the essential terms of the Agreement.

1.16 “Territory” will mean worldwide.

Exhibit 10.21

EXCLUSIVE LICENSE AGREEMENT

between

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

and

MERRIMACK PHARMACEUTICALS, INC.

for

[**]
(UC Case No. [**])

[**]
(UC Case No. [**])

and

[**]
(UC Case No. [**])

TABLE OF CONTENTS

Confidential Materials omitted and filed separately with the
Securities and Exchange Commission. Asterisks denote omissions.

EXCLUSIVE LICENSE AGREEMENT
for
[**] (UC Case No. [**]),
[**] (UC Case No. [**]) AND
[**] (UC Case No. [**])

This license agreement ("Agreement") is made effective this 16th day of March, 2005 ("Effective Date"), by and between The Regents of the University of California, a California corporation, having its statewide administrative offices at 1111 Franklin Street, 12th Floor, Oakland, California 94607-5200 ("The Regents") and Merrimack Pharmaceuticals, Inc., a Massachusetts corporation, having a principal place of business at 101 Binney Street, Cambridge, Massachusetts 02142 ("Licensee").

BACKGROUND

A. Certain inventions (collectively "Inventions"), generally characterized as:

(i) "[**]" and disclosed in UC Case No. [**], were made in the course of research at the University of California, San Francisco, by [**], and are claimed in Patent Rights Group A as defined below;

(ii) "[**]" and disclosed in UC Case No. [**], were made in the course of research at the University of California, San Francisco, by [**], and are claimed in Patent Rights Group B as defined below; and

(iii) "[**]" disclosed in UC Case No. [**], are claimed in Property Rights and were made in the course of research at the University of California, San Francisco, by [**].

B. The development of the Invention was sponsored in part by the Department of Health and Human Services and the United States Army Medical Research and Development Command and, as a consequence, this license is subject to overriding obligations to the United States Federal Government under 35 U.S.C. §§ 200-212 and applicable regulations including a non-exclusive, non-transferable, irrevocable, paid-up license to practice or have practiced the Invention for or on behalf of the United States Government throughout the world.

C. The Invention of UC Case No. [**] was jointly developed by the University of California, San Francisco and [**] and is jointly owned by The Regents and [**]. The Regents

and [**] have executed an Interinstitutional Agreement (UC Control No. [**]) effective August 22, 2003, whereby [**] shall not grant to any person or entity (other than The Regents) any right, title or interest in, to or under the Patent Rights Group B and will grant The Regents the sole responsibility to commercialize and administer the Inventions in such patent applications and patents. Pursuant to the Interinstitutional Agreement, The Regents will provide a copy of this Agreement to [**].

D. The Licensee has evaluated the Inventions under the following Agreements with The Regents: Secrecy Agreement (UC Control No. [**]) for UC Case No. [**] with an effective date of January 20, 2004; a Secrecy Agreement (UC Control No. [**], for UC Case No. [**] with an effective date of May 16, 2003; a Material Evaluation Agreement (UC Control No. [**]) for UC Case No. [**] with an effective date of August 11, 2003; a Secrecy Agreement for Data and Biological Materials (UC Control Nos. [**] and [**]) for UC Case Nos. [**] and [**] with effective dates of September 3, 2003.

E. The Licensee wishes to obtain certain rights from The Regents for the commercial development of the Inventions, in accordance with the terms and conditions set forth herein and The Regents is willing to grant those rights so that the Inventions may be developed and the benefits enjoyed by the general public.

F. The scope of such rights granted by The Regents (except for the Property Rights) is intended to extend to the scope of the patents and patent applications in Patent Rights, but only to the extent that The Regents has proprietary rights in and to the Valid Claims of such Patent Rights.

G. As of the date this Agreement is signed on behalf of the Licensee, the Licensee is a "small business firm" as defined in 15 U.S.C. §632.

H. Both parties recognize and agree that Earned Royalties are due under this Agreement with respect to products, services and methods and that such royalties will be paid with respect to both pending patent applications and issued patents, in accordance with the terms and conditions set forth herein.

I. Both parties recognize and agree that Earned Royalties due under this Agreement will be based on the Licensee's or a Sublicensee's last act of infringement of Patent Rights within the control of the Licensee or a Sublicensee, regardless of whether the Licensee or a Sublicensee had control over prior infringing acts; the parties intend that Earned Royalties due

under this Agreement will be calculated based on the Net Sales of the product or service resulting from the last act of infringement by the Licensee and its Sublicensees.

J. The Licensee acknowledges that the Licensee may make and use the Biological Materials and Property Rights solely as permitted under this Agreement and for no other purpose.

- - oo 0 oo - -

The parties agree as follows:

1. DEFINITIONS

As used in this Agreement, the following terms, whether used in the singular or plural, shall have the following meanings:

1.1 "Affiliate" of the Licensee means any entity which, directly or indirectly, Controls the Licensee, is Controlled by the Licensee or is under common Control with the Licensee. "Control" means (i) having the actual, present capacity to elect a majority of the directors of such entity; (ii) having the power to direct at least fifty percent (50%) of the voting rights entitled to elect directors; or (iii) in any country where the local law will not permit foreign equity participation of a majority, having the power to direct or cause the direction of the management and policies of such entity.

1.2 "Attributed Income" means the total gross proceeds (exclusive of earned royalties of Sublicensees, but including, without limitation, any license fees, maintenance fees, or milestone payments (any milestone payment being subject to Paragraph 8.2 below)), whether consisting of cash or the fair market value of any other form of consideration and whether any rights other than Patent Rights are granted, received by or payable to the Licensee, any Affiliate and/or Joint Venture from any Sublicensee in consideration of the grant of a sublicense and from any Development Partner in consideration of any agreement, arrangement or other relationship described in Paragraph 1.6. Notwithstanding the foregoing, Attributed Income shall not include proceeds reasonably and fairly attributed in such sublicense or such agreement, arrangement or other relationship to bona fide (i) debt financing; (ii) equity (and conditional equity, such as warrants, convertible debt and the like) investments in the Licensee or any Affiliate and/or Joint Venture at not more than one hundred twenty five percent (125%) of "market value"; (iii) reimbursements of Patent Prosecution Costs; and (iv) reimbursement for the cost of research

and/or development services provided on the basis of full-time equivalent ("FTE") efforts of personnel at or below commercially reasonable and standard FTE rates for the biotechnology industry. For the purposes of this Agreement, a standard FTE rate for the biotechnology industry means no more than [**] to [**] dollars ($[**] - $[**]; 2004 dollars) per FTE. The term "market value" shall mean: (i) if Licensee's common stock is publicly traded, the value of such equity using a per share price equal to the average of the reported closing prices of such stock on the exchange for the twenty trading days prior to such purchase; or (ii) otherwise, the value of such equity using the per share purchase price determined as follows:

1.2.1 If the Licensee, an Affiliate or Joint Venture, as applicable, consummates an equity financing during the period commencing on the date that is [**] days prior to, and ending on the date that is [**] days following, the date of determination, then the market value of a share of stock of such entity issued in connection with such sublicensing arrangement shall be the purchase price of a share of stock of such entity issued in the last equity financing, if any, consummated during such period; or

1.2.2 If no equity financing is consummated by the Licensee, an Affiliate or Joint Venture, as applicable, during the period described in Paragraph 1.2.1 above, then the market value of a share of stock of such entity shall be determined in good faith by such entity's Board of Directors (or functional equivalent thereof) and The Regents shall be notified thereof in writing. The Regents at its expense may, upon written notice to Licensee, appoint an independent certified public accountant or investment banking firm (an "Independent Appraiser") reasonably acceptable to Licensee to determine the market value of a share of stock of such entity. Notwithstanding the above, in the event that the Licensee has rejected three (3) appointees, then The Regents shall have the right to choose an Independent Appraiser without Licensee's assent. If The Regents fails to notify the Licensee of its

election to exercise its valuation rights within [**] days after its receipt of the initial determination, then the market value thereof shall be the amount as

determined by such Board of Directors. If The Regents exercises its valuation right, The Regents shall cause its Independent Appraiser to provide its determination of such market value in writing to the Licensee and The Regents. Following receipt of such determination, the parties shall, in good faith, attempt to mutually agree upon the market value of a share of stock of the applicable entity. If the parties are unable to so agree within [**] days following their receipt of such determination, the parties shall appoint a mutually acceptable Independent Appraiser to determine the market value of a share of stock of the applicable entity (such costs and expense of the Independent Appraiser shall be shared equally by The Regents and the Licensee). In such case the determinations made by the applicable entity's Board of Directors, the Independent Appraiser appointed by The Regents and the Independent Appraiser jointly appointed by the parties shall be compared, and the market value shall be the middle determination (and not an average thereof).

1.3 "Biological Materials" means: (a) the Original Materials, their Progeny, mutations, hybrids, fragments or derivatives derived therefrom by the Licensee ("Materials"); (b) any material which incorporates the Materials; (c) material contained in or produced by the Materials, including cells, DNA, RNA, or secreted products or encoded products obtained by the Licensee from the Materials, or fragments or derivatives thereof derived by the Licensee from the Materials; or (d) any material described in (c) above, produced by the Licensee using chemical synthesis or any other method based on use of the Materials.

1.4 "[**]" is defined in Article 6 (License Issue Fee).

1.5 "Combination Product" means a combined Product that contains or uses a Licensed Product and at least one other Product or process (a "Combination Product Component"), where (i) such Combination Product Component is not a Licensed Product, (ii) if such Combination Product Component were removed from such combined Product, the manufacture, use, Sale or import of the resulting Product in or into a particular country would infringe, but for a license, the same Valid Claim in the country where such manufacture, use, Sale or import occurs as such combined Product, (iii) such Combination Product Component and

such Licensed Product are Sold separately from such combined Product by the Licensee or any Affiliate, Joint Venture or Sublicensee, (iv) such Combination Product Component does not function together with a Licensed Product so as to achieve the purpose for which such Licensed Product is Sold and (v) the market price of such combined Product is higher than the market price for such Licensed Product as a result of such combined Product containing or using such Combination Product Component.

1.6 "Development Partner" means any person or entity other than a Sublicensee that has an agreement, arrangement or other relationship with the Licensee, any Affiliate, any Joint Venture or any Sublicensee for the research or development of Licensed Products.

1.7 "Diagnostic Licensed Product" means a Licensed Product that is used as a human diagnostic and/or prognostic.

1.8 "Earned Royalty" means Sublicensee Royalty (as defined in Paragraph 8.2) and Royalty (as defined in Paragraph 9.1).

1.9 "Field of Use" means use as a therapeutic or diagnostic in humans. The Field of Use specifically excludes (i) providing Licensed Services to third parties; (ii) the Sale, transfer, lease, exchange or other disposition or provision of Biological Materials, other than as incorporated in Licensed Products for Sale or as expressly permitted in this Agreement; (iii) the making, using or Selling of Biological Materials or Licensed Products for use in drug discovery or as a research reagent (other than for the development of Licensed Products); (iv) the making, using or Selling of Non-Patent Products; and (v) all other uses and applications of Biological Material or Licensed Products, except as expressly permitted in this Agreement. Notwithstanding anything to the contrary in this Agreement, the Licensee may make (propagate), have made and use the Biological Material as provided for in Paragraph 2.2. Notwithstanding the above, the Licensee may Sell Licensed Products for which the Patent Rights have expired as provided for in Paragraph 5.1

1.10 "FTE" is defined in Paragraph 1.2 (Attributed Income).

1.11 "Joint Venture" means any separate entity established pursuant to an agreement between a third party and the Licensee and/or Sublicensee to constitute a vehicle for a joint venture, in which the separate entity manufactures, uses, purchases, Sells or acquires Licensed Products from the Licensee or Sublicensee.

1.12 "Licensed Method" means any process, art or method the use or practice of which, but for the license granted in this Agreement, would infringe, or contribute to, or induce the infringement of, any Patent Rights in any country were they issued at the time of the infringing activity in that country.

1.13 "Licensed Product(s) " means any Product, including, without limitation, a Product for use or used in practicing a Licensed Method and any Product made by practicing a Licensed Method, the manufacture, use, Sale, offer for Sale or import of which, but for the license granted in this Agreement, would infringe, or contribute to, or induce the infringement of, any Patent Rights in any country were they issued at the time of the infringing activity in that country.

1.14 "Licensed Service" means any service provided for consideration (whether in cash or any other form), when such service (i) involves the use of a Licensed Product; (ii) involves the practice of a Licensed Method; or (iii) involves the use of Property Rights or Biological Materials.

1.15 “Modifications” means substances created by or for the Licensee and/or any Sublicensee which contain or incorporate the Original Materials, Progeny and/or Unmodified Derivatives.

1.16 “Net Invoice Price” means (a) the gross invoice price charged and the fair market value of any other non-cash consideration owed to the Licensee and/or any Sublicensee for a Licensed Product, or (b) in those instances where the Licensed Product is combined in any manner with any other Product or service, the gross invoice price charged and the fair market value of any other non-cash consideration owed to the Licensee and/or any Sublicensee for the combined Product or service in its entirety, less the following items, but only to the extent that they actually pertain to the disposition of such Licensed Product and are separately billed:

1.16.1 Amounts repaid or credited to customers for rejections, returns and prompt payment and volume discounts;

1.16.2 Freight, transport packing and insurance charges associated with transportation;

1.16.3 Taxes, including Deductible Value Added Tax, tariffs or import/export duties based on Sales when included in the gross invoice price, but excluding value-added taxes other than Deductible Value Added Tax or

taxes assessed on income derived from Sales. “Deductible Value Added Tax” means value added tax only to the extent that such value added tax is actually incurred and is not reimbursable, refundable or creditable under the tax authority of any country;

1.16.4 Only those discounts and rebates that are given as a part of a formulary program and that are paid or credited to customers, third-party payers, healthcare systems, or administrators for a Licensed Product when included in such formulary program, as permitted by applicable law;

1.16.5 Only those wholesaler’s discounts and rebates that are part of a formulary program and that are paid or credited to customers, third-party payers, health care systems, or administrators for a Licensed Product when included in such formulary program, as permitted by applicable law; and

1.16.6 Rebates and discounts paid or credited pursuant to applicable law.

1.17 “Net Sale” means:

1.17.1 except in the instances described in Paragraphs 1.17.2, 1.17.3 and 1.17.4 of this Paragraph, the Net Invoice Price;

1.17.2 for any Relationship-Influenced Sale of a Licensed Product, Net Sales shall be based on the Net Invoice Price at which the Relationship-Influenced Sale Purchaser resells such Licensed Product;

1.17.3 in those instances where Licensed Product is not Sold, but is otherwise exploited for purposes other than for the further research and development (pre and/or post-approval) of Licensed Products, which research and development purposes include quality assurance and control and testing of Licensed Products (in any case regardless of whether other benefits arise out of such activities, so long as the primary purpose was for the research and development of the Licensed Product in question), the Net Sales for such Licensed Product shall be the Net Invoice Price of products of the same or similar kind and quality, Sold in similar quantities, currently being offered for Sale by the Licensee and/or any Sublicensee. Where such products or services are not

currently being offered for Sale by the Licensee and/or any Sublicensee, the Net Sales for Licensed Product otherwise exploited, for the purpose of computing royalties, shall be the average Net Invoice Price at which products of the same or similar kind and quality, Sold in similar quantities, are then currently being offered for Sale by other manufacturers. Where such products or services are not currently Sold or offered for Sale by the Licensee and/or any Sublicensee, or others, then the Net Sales shall be the Licensee’s and/or any Sublicensee’s cost of manufacture of Licensed Product or the cost of conducting the service, determined according to generally accepted accounting principles (“GAAP”), plus [**] percent ([**]%); and

1.17.4 in those instances where the Licensee or any Sublicensee acquires a Licensed Product and then subsequently Sells or otherwise exploits (as such exploitation is described in Subparagraph 1.17.3) such Licensed Product, Net Sales shall mean the Net Invoice Price upon the Sale or other exploitation of such Licensed Product by the Licensee or any Sublicensee, with the resulting royalty amount due to The Regents subject to a deduction for any royalty amounts paid to The Regents on account of an earlier Sale or other exploitation of such Licensed Product, if any.

For a Combination Product, Net Sales shall be calculated as:

A/(A+B) x [Net Sales, calculated without regard to this formula, of the Licensed Product that is the Combination Product],

Where:

(i) “A” is the total of Net Sales of each Licensed Product contained within or used in the Combination Product when Sold separately; and

(ii) “B” is the total of Net Sales of each Combination Product Component contained within or used in the Combination Product when Sold separately,

provided, however, that in no event shall Net Sales for a Combination Product be less than [**] percent ([**]%) of Net Sales, calculated without regard to this formula, of the Licensed Product that is the Combination Product.

1.18 "New Developments" means inventions, or claims to inventions, which constitute advancements, developments or improvements, whether or not patentable and whether or not the subject of any patent application, which are not sufficiently supported by the specification of a previously-filed patent or patent application within the Patent Rights to be entitled to the priority date of the previously-filed patent or patent application.

1.19 "Non-Patent Product" means a Product that is the subject of, is covered by, uses or is developed or derived from Property Rights or any Biological Materials; and is not a Licensed Product in any country.

1.20 "Non-US Major Market Country" means the United Kingdom, Germany, France, Italy, Spain, Ireland, Canada, Japan, or Australia.

1.21 "Other Exploitation" is described in Subparagraph 1.17.3.

1.22 "Original Materials" means the materials listed in Appendix B.

1.23 "Patent Prosecution Costs" is defined in Paragraph 21.4.

1.24 "Patent Rights" means Patent Rights Group A and Patent Rights Group B.

1.25 "Patent Rights Group A" means the Valid Claims of, to the extent assigned to or otherwise obtained by The Regents, the following United States patents and patent applications:

UC Case Number	United States Application Number or United States Patent Number	Filing or Issue Date
[**]	[**]	[**]
[**]	[**]	[**]
[**]	[**]	[**]
[**]	[**]	[**]

Patent Rights Group A shall further include the Valid Claims of, to the extent assigned to or otherwise obtained by The Regents, the corresponding foreign patents and patent applications (requested under Paragraph 21.7 herein), any continuations, divisions, and continuation-in-part applications (but only those Valid Claims in the continuation-in-part applications that are entirely supported in the specification and entitled to the priority date of the parent application) of any referenced United States or foreign application, any patents issuing on such referenced United States or foreign applications, and any re-examinations, reissues, extensions or substitutions of such referenced United States or foreign patents. This definition of Patent Rights Group A excludes any rights in and to New Developments.

1.26 "Patent Rights Group B" means the Valid Claims of, to the extent assigned to or otherwise obtained by The Regents, the following United States patents and patent applications::

UC Case Number	United States Application Number or United States Patent Number	Filing or Issue Date
[**]	[**]	[**]
[**]	[**]	[**]
[**]	[**]	[**]

Patent Rights Group B shall further include the Valid Claims of, to the extent assigned to or otherwise obtained by The Regents, the corresponding foreign patents and patent applications (requested under Paragraph 21.7 herein), any continuations, divisions, and continuation-in-part applications (but only those Valid Claims in the continuation-in-part applications that are entirely supported in the specification and entitled to the priority date of the parent application) of any referenced United States or foreign application, any patents issuing on such referenced United States or foreign applications, and any re-examinations, reissues, extensions or substitutions of such referenced United States or foreign patents. This definition of Patent Rights Group B excludes any rights in and to New Developments.

1.27 "Product" means any kit, article of manufacture, composition of matter, material, compound, component or product.

1.28 "Progeny" means descendants from the Original Materials, Progeny and/or Unmodified Derivatives, including those with mutations such as: virus from virus; cell from cell; or organism from organism.

1.29 "Property Rights" means The Regents' personal property rights in the Biological Materials.

1.30 "Related Party" means a corporation, firm or other entity with which, or individual with whom, the Licensee and/or any Sublicensee (or any of their respective stockholders, subsidiaries or Affiliates) have any agreement, understanding or arrangement (for example, but not by way of limitation, an option to purchase stock or other equity interest, or an arrangement involving a division of revenue, profits, discounts, rebates or allowances) unrelated to the Sale or exploitation of the Licensed Products without which such other agreement, understanding or arrangement, the amounts, if any, charged by the Licensee or any Sublicensee to such entity or individual for the Licensed Product, would be higher than the Net Invoice Price

actually received, or if such agreement, understanding or arrangement results in the Licensee or any Sublicensee extending to such entity or individual lower prices for such Licensed Product than those charged to others without such agreement, understanding or arrangement buying similar products or services in similar quantities.

1.31 "Relationship-Influenced Sale" means a Sale of a Licensed Product, or any exploitation of the Licensed Product or Licensed Method between the Licensee and/or any Sublicensee and (i) an Affiliate; (ii) a Joint Venture; (iii) a Related Party or (iv) the Licensee and/or a Sublicensee.

1.32 "Relationship-Influenced Sale Purchaser" means the purchaser of Licensed Product in a Relationship-Influenced Sale.

1.33 "Sale" means the act of selling, leasing or otherwise transferring, providing, or furnishing for use for any consideration. Correspondingly, "Sell" means to make or cause to be made a Sale and "Sold" means to have made or caused to be made a Sale.

1.34 "Sublicensee" means any person or entity (including any Affiliate or Joint Venture) to which any of the license rights granted to the Licensee hereunder are sublicensed.

1.35 "Sublicense Fee" is defined in Paragraph 8.1.

1.36 "Therapeutic Licensed Product" means a Licensed Product that is used to prevent, treat or cure one or more diseases and/or conditions of humans.

1.37 "Unmodified Derivatives" means substances derived from the Original Materials or from Progeny, including substances that constitute an unmodified functional subunit or product expressed by the Original Materials, Progeny and/or Unmodified Derivatives. Some examples include: subclones of cell lines; purified or fractionated subsets of the Original Materials or Progeny; DNA or RNA; genetic material; secreted or encoded products obtained from the Original Materials, Progeny and/or Unmodified Derivatives, including expressed proteins; or monoclonal antibodies secreted by a hybridoma cell line.

1.38 "Valid Claim" means a claim of a patent or patent application in any country that (i) has not expired; (ii) has not been disclaimed; (iii) has not been cancelled or superseded, or if cancelled or superseded, has been reinstated; and (iv) has not been revoked, held invalid, or otherwise declared unenforceable or not allowable by a tribunal or patent authority of competent jurisdiction over such claim in such country from which no further appeal has or may be taken.

2. GRANT

2.1 Subject to the limitations and other terms and conditions set forth in this Agreement including the license granted to the United States Government set forth in the background and in Paragraph 2.4.1, The Regents grants to the Licensee a license under its rights in and to Patent Rights to make, have made, use, Sell, offer for Sale and import Licensed Products and to practice Licensed Methods, in the United States and in other countries where The Regents may lawfully grant such licenses, only in the Field of Use.

2.2 Subject to the limitations and other terms and conditions set forth in this Agreement including the license granted to the United States Government set forth in the background and in Paragraph 2.4.1, The Regents grants to the Licensee a license under its rights in and to Property Rights to make (propagate), have made and use the Biological Materials to make, have made, use, Sell, offer for Sale and import Licensed Products, or to practice Licensed Methods, in the United States and in other countries where The Regents may lawfully grant such licenses, only in the Field of Use. In order to exercise its have made right under this Agreement, the Licensee may transfer the Biological Materials to its third party manufacturers under a written agreement such written agreement to include the following provisions: 1. the third party manufacturers may not transfer the Biological Materials to any party other than the Licensee; 2. the third party manufacturers may use the Biological Materials solely to manufacture Licensed Products to be Sold by the Licensee under the terms of this Agreement; and 3. the third party manufacturers must return to the Licensee all Biological Materials upon termination or expiration of the agreement between the third party manufacturer and the Licensee.

2.3 Except as otherwise provided for in this Agreement, the license granted under Patent Rights in Paragraph 2.1 is non-exclusive for Patent Rights Group A and is exclusive for Patent Rights Group B. Except as otherwise provided for in this Agreement, the license granted under Property Rights in Paragraph 2.2 is non-exclusive.

2.4 The license granted in Paragraphs 2.1, 2.2 and 2.3 is subject to the following:

2.4.1 The obligations to the United States Government under 35 U.S.C. §§ 200-212 and all applicable governmental implementing regulations, as amended from time to time, including the obligation to report on the utilization of the Invention as set forth in 37 CFR. § 401.14(h), and all

applicable provisions of any license to the United States Government executed by The Regents; and

2.4.2 the National Institutes of Health "Principles and Guidelines for Recipients of NIH Research Grants and Contracts on Obtaining and Disseminating Biomedical Research Resources," 64 F.R. 72090 (Dec. 23, 1999), as amended from time to time.

2.5 The license granted in Paragraphs 2.1, 2.2 and 2.3 is limited to methods and products that are within the Field of Use. For other methods and products, the Licensee has no license under this Agreement.

2.6 Title in and to the Original Materials, Progeny and Unmodified Derivatives and any rights, including any and all intellectual property rights, relating thereto is not transferred to the Licensee under this Agreement. Licensee will own any Modifications, except for any Original Materials, Progeny and/or Unmodified Derivatives contained or incorporated in any Modifications. The Regents agrees and acknowledges that the Licensee may receive samples of certain Original Materials from Dr. [**] or Dr. [**]. The Licensee may use such Original Materials and any Biological Materials solely as permitted under this Agreement; provided, however, in no event may the Licensee Sell, transfer, lease, exchange or otherwise dispose or provide such Original Materials and/or any Biological Materials to any third party except solely as provided for in Paragraph 32.6.2. The Licensee shall transfer a reasonable number of samples of Original Materials, Progeny and Unmodified Derivatives but not Modifications developed under this Agreement to The Regents or [**] from time to time, upon reasonable request by The Regents or [**]. The Licensee shall notify The Regents if the Licensee receives any additional biological material (specifically including any additional ErbB/HER antibodies) when such biological material is being provided for use by Licensee or is used by Licensee under this Agreement from Drs. [**] or Dr. [**] or any representative of The Regents which is not listed in Appendix B. The Licensee may not use such biological material without the written permission of The Regents.

2.7 The Regents and [**] reserve and retain their rights (and the rights granted to the Licensee in this Agreement shall be limited accordingly) to make, use and practice the Invention, the Property Rights, the Biological Materials and any technology relating to any of the foregoing and to make and use any Products and to practice any process that is the subject of the Patent

Rights (and to grant any of the foregoing rights to other educational and non-profit institutions) for educational and research purposes, including without limitation, any sponsored research performed for or on behalf of commercial entities and including publication and other communication of any research results. For the avoidance of doubt, to the extent the Invention, the Property Rights, the Original Materials and any biological materials made from the Original Materials and any technology relating to any of the foregoing are not the subject of the exclusive license under the Patent Rights granted to the Licensee hereunder, The Regents shall be free to make, use, Sell, offer to Sell, import, practice and otherwise commercialize and exploit (including to transfer, license to, or have exercised by, third parties) for any purpose whatsoever and in its sole discretion, such Invention, Property Rights, Original Materials and any biological materials made from the Original Materials, technology and any Products or processes that are the subject of any of the foregoing. Notwithstanding the foregoing, nothing in this Agreement shall be construed to grant to The Regents or [**] any rights to make, use, sell or otherwise commercialize Modifications for any purpose. However, The Regents and [**] are not limited in any way in practicing their independent developments.

2.8 Because the Invention was made under funding provided by the United States Government, Licensed Products, the Invention, and any products embodying the Invention sold in the United States will be substantially manufactured in the United States.

3. SUBLICENSES

3.1 The Regents also grants to the Licensee the right to sublicense to third parties (including to Affiliates and Joint Ventures) the rights granted to the Licensee hereunder, with no right to further sublicense except as provided below, as long as the Licensee has current exclusive rights thereto under this Agreement (and to sublicense the non-exclusive rights granted for Patent Rights Group A and/or the Property Rights provided that such rights are licensed in conjunction with the exclusive rights granted herein). Each Sublicensee must be subject to a written sublicense agreement. Such sublicenses will include all of the terms, conditions, obligations and other restrictions of this Agreement that protect or benefit The Regents' (and, if applicable, the United States Government's and other sponsors') rights and interests, other than those terms, conditions and obligations specified in Article 6 (License Issue Fee), Article 7 (License Maintenance Fee) and Paragraph 9.3 (Minimum Annual Royalty) and Paragraphs 21.4

and 21.8 (reimbursement for Patent Prosecution Costs). For the avoidance of doubt, the Licensee shall have no right to permit any Sublicensee and no Sublicensee shall have any right to further sublicense any of the rights granted to the Licensee hereunder, except that each Sublicensee (except Affiliates and Joint Ventures) may sublicense to its Affiliates as Affiliate is defined in Paragraph 1.1 with sublicensee substituted for Licensee in the definition, to the extent reasonably needed for the development and commercialization of Licensed Products in accordance with this Agreement. Also, for the avoidance of doubt, Affiliates and Joint Ventures shall have no licenses under this Agreement unless such Affiliates and Joint Ventures are granted a sublicense. Notwithstanding the above, The Regents, upon Licensee's request, agrees to confer with the Licensee and the Licensee's Sublicensee (or potential Sublicensee) to discuss allowing such Sublicensee to further sublicense any of the rights granted to Licensee hereunder.

3.2 Upon the license granted to Licensee hereunder becoming non-exclusive in a Field of Use for any reason, all exclusive sublicenses granted by Licensee hereunder in such Field of Use may remain in effect but shall become non-exclusive, provided that such Sublicensees are not in breach of the terms of this Agreement, and Licensee shall thereafter have no right to grant additional sublicenses of its rights hereunder in such Field of Use.

3.3 In the event that The Regents and the Licensee each own an undivided interest in any Patent Rights licensed hereunder, the Licensee will not separately grant a license to any third party under its rights without concurrently granting a license under The Regents' rights on the terms and conditions described in this Article 3 (Sublicenses).

3.4 The Licensee will notify The Regents of each sublicense granted hereunder and will provide The Regents with a complete copy of each sublicense and each amendment to such sublicense within [**] days of issuance of such sublicense or such amendment. The Licensee will collect from Sublicensees and pay to The Regents all fees, payments, royalties and the cash equivalent of any consideration due The Regents. The Licensee will guarantee all monies due The Regents from Sublicensees. For clarity, if the Licensee grants a sublicense that contains a provision for payment of royalties by any Sublicensee in an amount that is less than the Sublicensee Royalty required to be paid under Paragraph 8.3 below, then the Licensee will pay to The Regents a total amount equal to the Sublicensee Royalty based on the Sublicensees' Net Sales as provided for in Paragraph 8.3 and 8.4. The Licensee will require Sublicensees to provide it with copies of all progress reports and royalty reports in accordance with the

provisions herein and the Licensee will collect and deliver all such reports due The Regents from Sublicensees.

3.5 If Licensee licenses patent rights assigned to or otherwise acquired by it ("Licensee's Patent Rights"), and it believes, in good faith, that the recipient of such license will infringe Patent Rights in practicing the Licensee's Patent Rights, then the Licensee will not separately grant a license to such recipient under Licensee's Patent Rights without concurrently granting a sublicense under Patent Rights on the terms required under this Agreement.

3.6 Upon any expiration (unless the continuing license to Property Rights exists under Paragraph 14.1) or termination of this Agreement for any reason, all sublicenses shall automatically terminate, unless The Regents, at its sole discretion, agrees in writing to an assignment to The Regents of any sublicense. The Regents shall not be bound to any duties under an assigned sublicense beyond The Regents' duties under this Agreement. In the event of termination of this Agreement and if The Regents accepts assignment of any sublicense, any such assignment will include a modification to the sublicense that requires payment of Earned Royalties directly to The Regents by the Sublicensee as if it were the Licensee at a rate that is no lower than the rate set forth in Article 9 (Earned Royalties and Minimum Annual Royalties) in accordance with Article 5 (Payment Terms). Upon the Licensee's reasonable request, at any time during the term of this Agreement, The Regents agrees to meet and confer in good faith with the Licensee and any Sublicensee or potential Sublicensee to discuss what assurances The Regents will give to the Sublicensee or potential Sublicensee that the subject sublicenses will not be terminated upon termination of this Agreement. To the extent The Regents is willing to give such assurances, The Regents agrees that it shall enter into a written agreement with the Licensee and such Sublicensee regarding setting forth The Regents' assurances and The Regents' agreement not to require termination of the sublicense.

4. MANDATORY SUBLICENSING

4.1 If at any time following the two (2) year anniversary date of the Effective Date, The Regents (as represented by the actual knowledge of the licensing professional responsible for administration of this Agreement) is notified by a third party of an application or use for Products covered by Patent Rights Group B within the licensed Field of Use and within the exclusive rights granted hereunder but for which Licensed Products have not been developed or

are not, at such time, being developed by Licensee and such third party has requested a license to such application or use, then The Regents, through the Office of Technology Transfer, may give written notice to Licensee thereof.

4.2 Within [**] days of such notice, Licensee shall give The Regents written notice stating whether Licensee agrees to [**] Licensed Products for such application ("New Licensed Products"). Such notice shall be accompanied by (i) [**]; and (ii) [**] (collectively, the "[**]"). If Licensee has not notified The Regents, in accordance with the foregoing, that Licensee agrees to [**] such New Licensed Products within such [**] day period, or if the [**] is not reasonably acceptable to The Regents, and after receiving written notice of its deficiencies from The Regents, the Licensee has not resubmitted a [**] that is reasonably acceptable to The Regents within [**] days of receiving such notice, then Licensee shall be deemed to not so agree.

4.3 If Licensee agrees, as set forth in Paragraph 4.2, to [**] such New Licensed Products, then Licensee shall (i) [**] of such New Licensed Products and [**] in accordance with the diligence milestones of the [**] and in [**]; and (ii) Licensee shall submit a written progress report setting forth in detail the status of such [**] every [**] months to The Regents. The Licensee and The Regents agree to negotiate in good faith for a period of up to [**] days to amend Article 11 (Due Diligence) solely to incorporate the additional due diligence milestones for the New Licensed Products, consistent with the [**]. However, if such negotiations are not concluded within the [**] day period, the Licensee shall be deemed to not agree to the [**] of the New Licensed Products and The Regents will be free to [**] in accordance with Paragraphs 4.4 and 4.5 below. No amendment to this Agreement is valid or binding on the parties unless it is made in writing and signed on behalf of each party.

4.4 If Licensee does not agree, as set forth in Paragraph 4.2, to [**] such New Licensed Products, or if Licensee fails to [**] thereof in accordance with the amended Article 11 (Due Diligence), as per Paragraph 4.3, then The Regents shall have the right to seek one or more third parties for the [**] of such New Licensed Products and refer such third party to Licensee so that such third party may request a sublicense allowing for [**] of such New Licensed Products. If the third party requests a sublicense, then Licensee shall report such request, together with the terms and conditions thereof, to The Regents within [**] days from the date of such request.

4.5 If Licensee does not grant a sublicense to the third party within a reasonable time after such request (and, in any event, within [**] days after such request), or refuses to grant such

sublicense under reasonable terms, then the Licensee shall promptly, or in the event of such refusal, within [**] days after such refusal, submit to The Regents a written report specifying the [**] and a [**]. If The Regents, at its sole discretion, determines that the [**] of the sublicense proposed by the third party are [**], then The Regents shall have the right to grant to the third party (and the rights granted to Licensee in this Agreement shall be limited accordingly) a license to make, have made, use, sell, offer for sale and import Licensed Products and to practice the Licensed Methods for the [**] of such New Licensed Products (within the licensed Field of Use and otherwise) [**] by the [**] providing that the [**] are [**] than the [**] hereunder. However, if The Regents agrees with the Licensee that the [**] of the sublicense proposed by the third party are [**], then the Licensee shall have, at its sole discretion, the right to submit to The Regents a [**] for the [**] of the New Licensed Products as provided for in Paragraph 4.2, and The Regents agrees to consider such [**] in good faith. Notwithstanding the above, The Regents shall be under no obligation whatsoever to Licensee and reserves the right to grant to a third party (and the rights granted to the Licensee in this Agreement shall be limited accordingly) a license to make, use Sell, offer for Sale and import Licensed Products and to practice the Licensed Methods allowing for the [**] of New Licensed Products.

4.6 For the sake of clarity, if the Licensee [**] a Licensed Product for the [**] to The Regents referred to in Paragraph 4.1, then this Article 4 (Mandatory Sublicensing) shall not apply.

5. PAYMENT TERMS

5.1 Paragraphs 1.12, 1.13 and 1.24 define Licensed Method, Licensed Product, and Patent Rights, so that Earned Royalties are payable on products and methods covered by both pending patent applications and issued patents. Earned Royalties will accrue in each country for the duration of Patent Rights in that country and will be payable to The Regents when Licensed Products are invoiced, or if not invoiced, when delivered or otherwise exploited by the Licensee or Sublicensee in a manner constituting a Net Sale as defined in Paragraph 1.17. Notwithstanding the previous sentence, upon the expiration or abandonment of applicable Patent Rights or in countries where Patent Rights have never existed, Earned Royalties will be due to The Regents on Net Sales of Licensed Products that contain or are comprised of the Biological Material at the Earned Royalty rate specified in Articles 8 (Payments on Sublicenses) and 9

(Earned Royalties and Minimum Annual Royalties), until such time as a total of nine (9) years have passed from the date of the First Sale of such Licensed Product in each country. Sublicense Fees with respect to any Attributed Income shall accrue to The Regents within [**] days of the date that such Attributed Income is paid to the Licensee.

5.2 The Licensee will pay to The Regents all Earned Royalties, Sublicense Fees and other consideration payable to The Regents quarterly on or before February 28 (for the calendar quarter ending December 31), May 31 (for the calendar quarter ending March 31), August 31 (for the calendar quarter ending June 30) and November 30 (for the calendar quarter ending September 31) of each calendar year. Each payment will be for Earned Royalties, Sublicense Fees and other consideration which has accrued within the Licensee's most recently completed calendar quarter.

5.3 All consideration due The Regents will be payable and will be made in United States dollars by check payable to "The Regents of the University of California" or by wire transfer to an account designated by The Regents. The Licensee is responsible for all bank or other transfer charges. When Licensed Products are Sold for monies other than United States dollars, the Earned Royalties and other consideration will first be determined in the foreign currency of the country in which such Licensed Products were Sold and then converted into equivalent United States dollars. The exchange rate will be the exchange rate quoted in the *The Wall Street Journal* on the last day of the reporting period.

5.4 Sublicense Fees and Earned Royalties on Net Sales of Licensed Products and other consideration accrued in, any country outside the United States may not be reduced by any taxes, fees or other charges imposed by the government of such country, except those taxes, fees and charges allowed under the provisions of Paragraph 1.17.

5.5 Notwithstanding the provisions of Article 28 (Force Majeure) if at any time legal restrictions prevent the prompt remittance of Earned Royalties or other consideration owed to The Regents by the Licensee ("Blocked Payments") with respect to any country where a sublicense is issued or a Licensed Product is Sold or otherwise exploited, then the Licensee shall convert the amount owed to The Regents into United States dollars and will pay The Regents directly from another source of funds in order to remit the entire amount owed to The Regents.

5.6 In the event that any patent or claim thereof included within the Patent Rights is held invalid in a final decision by a court of competent jurisdiction and last resort and from

which no appeal has or can be taken, then all obligation to pay royalties based on that patent or claim or any claim patentably indistinct therefrom will cease as of the date of final decision. The Licensee will not, however, be relieved from paying any royalties that accrued before such final decision and the Licensee shall be obligated to pay the full amount of royalties due hereunder to the extent that The Regents licenses one or more Valid Claims within the Patent Rights to the Licensee with respect to Licensed Products or to the extent that Licensed Products are based on Property Rights.

5.7 No Earned Royalties will be collected or paid hereunder to The Regents on Licensed Products Sold to, or otherwise exploited for, the account of the United States Government as provided for in the license to the United States Government. The Licensee, and its Sublicensees will reduce the amount charged for Licensed Products Sold to, or otherwise exploited by, the United States Government by an amount equal to the Earned Royalty for such Licensed Products otherwise due The Regents. Such reduction in Earned Royalties will be in addition to any other reductions in price required by the United States Government.

5.8 In the event that royalties, fees, reimbursements for Patent Prosecution Costs or other monies owed to The Regents are not received by The Regents when due, the Licensee will pay to The Regents interest at a rate of [**] percent ([**]%) simple interest per annum. Such interest will be calculated from the date payment was due until actually received by The Regents. Such accrual of interest will be in addition to and not in lieu of, enforcement of any other rights of The Regents due to such late payment.

5.9 No multiple running royalties will be payable because any Licensed Product or Licensed Method, its manufacture, use, lease, sale or import are or shall be covered by more than one patent application or issued patent licensed under this Agreement.

6. LICENSE ISSUE FEE

The Licensee shall pay to The Regents a **license issue fee** of [**] dollars ($[**]) within [**] days of the Effective Date. This fee is non-refundable, non-cancelable and is not an advance or otherwise creditable against any royalties or other payments required to be paid under the terms of this Agreement. The Licensee shall also pay to The Regents an additional **license issue fee** of [**] dollars ($[**]) within [**] days of the issuance of a claim corresponding

substantially to the claim listed in Paragraph 1 of Appendix A or the [**] listed in Paragraph 2 of Appendix A ("[**]").

7. LICENSE MAINTENANCE FEE

7.1 The Licensee shall also pay to The Regents a license maintenance fee on the one-year anniversary of the Effective Date in an amount equal to [**] dollars ($[**]). Subject to Paragraph 7.2. the Licensee will pay a license maintenance fee on each subsequent anniversary of the Effective Date in an amount equal to:

7.1.1 [**] dollars ($[**]) in the case that rights to neither Patent Rights Group A nor Patent Rights Group B have been terminated, or

7.1.2 [**] dollars ($[**]) in the case that rights to either Patent Rights Group A or Patent Rights Group B have been terminated.

Notwithstanding the above, in the case that the Licensee has not terminated its rights to Patent Rights Group B, and a [**] issues, the applicable fee in Paragraphs 7.1.1 or 7.1.2 will be increased by [**] dollars ($[**]).

7.2 The license maintenance fee is not due on any anniversary of the Effective Date if on that date, the Licensee is Selling or otherwise exploiting Licensed Products and is paying an Earned Royalty to The Regents on the Net Sales of such Licensed Product. The license maintenance fee is non-refundable and is not an advance or otherwise creditable against any royalties or other payments required to be paid under the terms of this Agreement.

8. PAYMENTS ON SUBLICENSES

8.1 The Licensee will pay to The Regents the following non-refundable and non-creditable sublicense fees ("Sublicense Fees"):

8.1.1 [**] percent ([**]%) of all Attributed Income unless Paragraph 8.1.2 applies; or

8.1.2 [**] percent ([**]%) of all Attributed Income where, in addition to a sublicense of any of the rights granted to the Licensee hereunder, the Licensee grants to the Sublicensee a license under a third party's patent rights which license is necessary for the Sublicensee to make, use and Sell Licensed Products without infringing such patent rights, provided

and only to the extent that the total aggregate consideration for such combined license is treated as Attributed Income.

8.2 Notwithstanding Paragraph 8.1, in the event that a milestone payment received by the Licensee from any Sublicensee or any Development Partner is for one of the milestone events recited in Paragraphs 10.1.1 through 10.1.5 or Paragraphs 10.2.1 through 10.2.2 for which a milestone payment is due to The Regents, then the Licensee shall pay to the Regents the larger of the milestone payment due or the appropriate percentage of Attributed Income, whichever is larger. In regard to payment, the Licensee will pay any milestone payment due as provided for in Paragraph 10.4 and will then pay any additional amount due under this Paragraph 8.2 in regard to Attributed Income as provided for in Article 5 (Payment Terms).

8.3 The Licensee will also pay to The Regents, with respect to each Sublicensee (other than an Affiliate or Joint Venture), an earned royalty of: (i) [**] percent ([**]%) of the Net Sales of each Licensed Product or Licensed Method ("Sublicensee Royalty").

8.4 In the event that the Licensee or a Sublicensee, as applicable, must pay to a third party royalties to obtain a patent right from such third party that is required to make, use, Sell or import a given Licensed Product or practice a given Licensed Method, then [**] percent of any payment to such third party for such patent right may be credited against up to [**] percent of the amounts payable to The Regents under Paragraph 8.3 above on a going-forward basis. Any credit pursuant to this Paragraph shall be available with respect to the full royalty payable to The Regents pursuant to Paragraph 8.3, provided that in no event shall the royalty payable to The Regents be reduced to less than [**] percent ([**]%) of Net Sales of Licensed Products or Licensed Methods by the Sublicensee as a result of all credits applied under this Agreement and provided further that no such credit shall by available with respect to any Combination Product to the extent attributable to payments under such third party license for patent rights that cover the Combination Product Component. In addition, any credit must be used within the royalty reporting period that such credit is earned and may not roll forward from one royalty reporting period to the next.

9. EARNED ROYALTIES AND MINIMUM ANNUAL ROYALTIES

9.1 The Licensee will also pay to The Regents an earned royalty of (i) [**] percent ([**]%) of the Net Sales of Licensed Product or Licensed Method by the Licensee or any Affiliate or Joint Venture ("Royalty").

9.2 In the event it becomes necessary for the Licensee to license patent rights owned by a third party to make, use or Sell Licensed Products or to practice Licensed Methods, then the Licensee shall have the right to obtain a license from such third party and to credit [**] percent ([**]%) of any payment made to such third party under such license against up to [**] percent ([**]%) of the amounts payable to The Regents under Paragraph 9.1 above on a going-forward basis. Any credit pursuant to this Paragraph shall be available to the Licensee with respect to the full royalty payable pursuant to Paragraph 9.1, provided that in no event shall the royalty payable to The Regents be reduced to less than [**] percent ([**]%) of Net Sales of Licensed Products or Licensed Methods by the Licensee or any Affiliate as a result of all credits applied under this Agreement and provided further that no such credit shall be available with respect to any Combination Product to the extent attributable to payments under such third party license for patent rights that cover the Combination Product Component. In addition, any credit must be used within the royalty reporting period that such credit is earned and may not roll forward from one royalty reporting period to the next.

9.3 The Licensee will also pay to The Regents a minimum annual royalty for the life of Patent Rights as follows:

(i) [**] dollars ($[**]) beginning with the year of the first Sale of Licensed Product, but no later than calendar year 2015;

(ii) [**] dollars ($[**]) for the second year of Sales of Licensed Product;

(iii) [**] dollars ($[**]) for the third and fourth years of Sales of Licensed Product; and

(iv) [**] dollars ($[**]) for the fifth year of Sales of Licensed Product and for each year thereafter for the life of Patent Rights.

9.4 The minimum annual royalty will be paid to The Regents by [**] of each year and will be credited against the Earned Royalty due for the calendar year in which the minimum payment was made. However, if the year of the first Sale is earlier than calendar year 2015, then the Licensee's obligation to pay the minimum annual royalty will be pro-rated for the number of

months remaining in that calendar year when Sales commence and will be due the following [**] (along with the minimum annual royalty payment for that year), to allow for crediting of the pro-rated year's Earned Royalties.

10. MILESTONE PAYMENTS

10.1 With respect to each Therapeutic Licensed Product, the Licensee will pay to The Regents the following non-refundable, non-creditable amounts:

10.1.1 [**] dollars ($[**]) upon the [**] Therapeutic Licensed Product; and

10.1.2 [**] dollars ($[**]) for the [**] Therapeutic Licensed Product; and

10.1.3 [**] dollars ($[**]) upon the [**] Therapeutic Licensed Product; and

10.1.4 [**] dollars ($[**]) upon the [**] Therapeutic Licensed Product [**]Therapeutic Licensed Product [**]; and

10.1.5 [**] dollars ($[**]) upon the [**] Therapeutic Licensed Product [**].

10.2 With respect to each Diagnostic Licensed Product, the Licensee will pay to The Regents the following non-refundable, non-creditable amounts:

10.2.1 [**] dollars ($[**]) upon the [**] Diagnostic Licensed Product [**]; and

10.2.2 [**] dollars ($[**]) upon the [**] Diagnostic Licensed Product [**].

10.3 For the avoidance of doubt, each of the milestone payments set forth in Paragraphs 10.1.1 through 10.1.5 and 10.2.1 through 10.2.2 will be payable with respect to each Licensed Product. Furthermore, each such milestone payment will be payable regardless of whether the applicable milestone event has been achieved by the Licensee or any Affiliate, Joint Venture, Sublicensee, or Development Partner. For the sake of clarity, each such milestone payment shall be made only once with respect to each Licensed Product. No additional payments shall be made by the Licensee in connection with filings, or with grants of approval by regulatory agencies in additional jurisdictions following the initial achievement of the applicable milestone event in any jurisdiction, foreign or domestic.

10.4 All milestone payments are due to The Regents within [**] days of the occurrence of the applicable milestone event by the Licensee, any Affiliate or Joint Venture, and within [**] days of the occurrence of the applicable milestone event by a Sublicensee or Development Partner.

10.5 Notwithstanding anything to the contrary in this Agreement, the milestone payments shall be payable for Therapeutic Licensed Products as set forth in Paragraphs 10.1.1 through 10.1.5, except that no payments shall be due for (i) a [**], and (ii) a [**], except as provided for in Paragraph 10.1.5.

11. DUE DILIGENCE

11.1 The Licensee, upon execution of this Agreement, will diligently proceed with the development, manufacture and Sale of Licensed Products and will earnestly and diligently market the same after execution of this Agreement and in quantities sufficient to meet the market demands therefor.

11.2 The Licensee will obtain all necessary governmental approvals in each country where Licensed Products are manufactured, used, Sold, offered for Sale or imported.

11.3 For Therapeutic Licensed Products, the Licensee will:

[**];

Notwithstanding the above, the Licensee will develop Therapeutic Licensed Products for Sale in the United States and will:

[**]

11.4 For Diagnostic Licensed Products, the Licensee will:

[**]

11.5 The Regents recognizes that, taking into account the uncertainties of scientific research and development, the nascent state of the technology licensed under this Agreement, and the need for considerable further research and development of the technology before it will be possible to commercialize a Licensed Product, it may be necessary from time to time to amend the milestones of Paragraphs 11.3 and 11.4. Accordingly, The Regents

hereby agrees to consider in good faith any reasonable proposals from the Licensee to amend the milestones of Paragraphs 11.3 and 11.4 in the light of the Licensee's experience in implementing the development of the Licensed Products under this Agreement, and The Regents and the Licensee agree to negotiate, in good faith, for a period of [**] days as may be appropriate to carry out the purposes and intent of this Agreement if despite diligent effort by the Licensee, by a date

specified in Paragraphs 11.3 or 11.4 the Licensee is unable to meet a specified milestone. If, however, notwithstanding good faith negotiation, the parties are unable to agree upon any modification to this Agreement, then the parties will be under no further obligation to negotiate, and the Agreement's terms shall govern. No amendment or modification of this Agreement is valid or binding on the parties unless made in writing and signed on behalf of each party.

11.6 In the event that the Licensee is unable to meet any of the deadlines set forth in Paragraphs 11.3 or 11.4, or to cure within the cure period set forth in Paragraph 11.10, the Licensee may request an extension of such missed deadline. Each such request shall be made in writing at least [**] days prior to the deadline that the Licensee will be unable to meet (or within the cure period, as applicable) and will be accompanied by: (i) a statement of the deadline for which the extension is being sought; and (ii) payment of an extension fee ("Extension Fee") of [**] dollars ($[**]). Upon receipt of such request and payment, The Regents shall grant an extension of the missed deadline, for which an extension is being sought, for [**]. Each such missed deadline may be extended, with payment of the Extension Fee, for a total of [**] from the original missed deadline. For the sake of clarity, any extension granted by The Regents is applicable only to the missed deadline for which the extension is being sought and does not apply to any other deadline.

11.7 If the Licensee is unable to perform any of the provisions set forth in Paragraphs 11.3 or 11.4 as extended, regarding Therapeutic Licensed Products, Diagnostic Licensed Products, or both, then The Regents has the right and option to either: (i) if the deadlines, as extended, in Paragraph 11.3 are not met, terminate this Agreement or reduce the exclusive license granted to a non-exclusive license in accordance with Paragraph 11.10, as to therapeutic applications only; or (ii) if the deadlines, as extended, in Paragraph 11.4 are not met, terminate this Agreement or reduce the exclusive license granted to a non-exclusive license in accordance with Paragraph 11.10, as to diagnostic applications only. This right, if exercised by The Regents, supersedes the rights granted in Article 2 (Grant).

11.8 In addition to the obligations set forth above, the Licensee shall spend an aggregate of not less than [**] dollars ($[**]) for the development of Licensed Products during the first two (2) years of this Agreement.

11.9 If the Licensee fails or is unable to comply with the spending requirement set forth in Paragraph 11.8, then The Regents has the right and option to either terminate this

Agreement or reduce the exclusive license granted to the Licensee to a nonexclusive license. This right, if exercised by The Regents, supersedes the rights granted in Article 2 (Grant).

11.10 To exercise either the right, under Paragraph 11.7, to terminate this Agreement or to reduce the exclusive license granted to the Licensee to a non-exclusive license as to diagnostic and/or therapeutic applications for lack of diligence required in this Article 11 (Due Diligence), The Regents will give the Licensee written notice of the deficiency. The Licensee thereafter has [**] days to cure the deficiency. If The Regents has not received written tangible evidence satisfactory to The Regents that the deficiency has been cured by the end of the [**]-day period, then The Regents may, at its option, terminate this Agreement immediately without the obligation to provide [**] days' notice as set forth in Article 15 (Termination by The Regents) or reduce the exclusive license granted to the Licensee to a non-exclusive license by giving written notice to the Licensee.

12. PROGRESS AND ROYALTY REPORTS

12.1 Beginning on March 31, 2005 and [**] thereafter, the Licensee will submit to The Regents a written progress report as described in Paragraph 12.2 below covering the Licensee's (and any Affiliates', Joint Ventures', Sublicensee's) activities related to the development and testing of all Licensed Products, the obtaining of the governmental approvals necessary for marketing and the activities required and undertaken in order to meet the diligence requirements set forth in Article 11 (Due Diligence). Progress reports are required for each Licensed Product until the first Sale or other exploitation of that Licensed Product occurs in the United States and shall be again required if Sales of such Licensed Product are suspended or discontinued.

12.2 Progress reports submitted under Paragraph 12.1 shall include, but are not limited to, a detailed summary of the following topics so that The Regents will be able to determine the progress of the development of Licensed Products and will also be able to determine whether or not the Licensee has met its diligence obligations set forth in Article 11 (Due Diligence) above:

12.2.1 [**] as of the submission date of the progress report;

12.2.2 [**] as of the submission date of the progress report;

12.2.3 [**] as of the submission date of the progress report;

12.2.4 [**] specified in Article 11 (Due Diligence);

12.2.5 [**] of Licensed Products including the anticipated and actual [**] of each Licensed Product;

12.2.6 [**] relating to the above items, if there are any [**];

12.2.7 for the first [**] years of this Agreement, a [**] in the reporting period; and

12.2.8 [**] by Licensee pursuant to Paragraph 4.2 of this Agreement.

12.3 If the Licensee fails to submit a timely progress report to The Regents, then The Regents will be entitled to terminate this Agreement, subject to Article 15 (Termination by The Regents). If either party terminates this Agreement before any Licensed Products are Sold or before this Agreement's expiration, then a final progress report covering the period prior to termination must be submitted within [**] days of termination or expiration.

12.4 The Licensee has a continuing responsibility to keep The Regents informed of the business entity status (small business entity status or large business entity status as defined by the United States Patent and Trademark Office) of itself, any Affiliates, Joint Ventures, or Sublicensees. The Licensee will notify The Regents of any change of its status or that of any Affiliate, Joint Venture, or Sublicensee within [**] days of the change in status.

12.5 The Licensee will report to The Regents the date of first Sale or other exploitation of a Licensed Product in each country in its first progress and royalty reports following such first Sale of a Licensed Product.

12.6 Beginning with the earlier of (i) the first Sale or other exploitation of a Licensed Product or (ii) the first transaction that results in Sublicense Fees accruing to The Regents, the Licensee will make quarterly royalty and Sublicensee Fee reports to The Regents on or before each February 28 (for the quarter ending December 31), May 31 (for the quarter ending March 31), August 31 (for the quarter ending June 30) and November 30 (for the quarter ending September 30) of each year. Each royalty and Sublicensee Fee report will cover Licensee's most recently completed calendar quarter and will, at a minimum, show:

12.6.1 [**] and Net Sales of Licensed Products Sold or otherwise exploited (itemizing the [**] and any [**] therefrom), and any Attributed Income (itemizing the [**] and any [**] therefrom);

12.6.2 [**] of Licensed Product Sold or otherwise exploited;

12.6.3 the [**] each Licensed Product was made, used or Sold or otherwise exploited;

12.6.4 the [**], in United States dollars, payable with respect to Net Sales;

12.6.5 the [**], in United States dollars, payable with respect to [**];

12.6.6 the [**], specifying all [**] taken and the dollar amount of [**];

12.6.7 the [**] used, if any;

12.6.8 the [**] and the [**] of the [**] of any [**] including the [**] the [**];

12.6.9 for each Licensed Product, the specific Patent Rights and Property Rights identified by UC Case Number exercised by the Licensee or any Affiliate, Joint Venture and Sublicensee in the course of making, using, selling, offering for Sale or importing such Licensed Product; and

12.6.10 any other information reasonably necessary to confirm Licensee's calculation of its financial obligations hereunder.

12.7 If no Sales of Licensed Products have been made and no Licensed Products have been otherwise exploited and no Attributed Income is due to the Licensee during any reporting period, then a statement to this effect must be provided by the Licensee in the immediately subsequent royalty and Sublicense Fee report.

13. BOOKS AND RECORDS

13.1 The Licensee will keep accurate books and records showing all Licensed Product under development, manufactured, used, offered for Sale, imported, Sold and or otherwise exploited; all Net Sales, all Attributed Income, and other amounts payable hereunder; and all sublicenses granted under the terms of this Agreement. Such books and records will be preserved for at least [**] years after the date of the payment to which they pertain and will be open to inspection, on a confidential basis, by representatives or agents of The Regents at reasonable times to determine their accuracy and assess the Licensee's compliance with the terms of this Agreement.

13.2 The Regents shall pay the fees and expenses of such examination. If, however, an error in royalties of more than five percent (5%) of the total royalties due for any year is discovered in any examination, then the Licensee shall bear the fees and expenses of such

examination and shall remit such underpayment to The Regents within [**] days of the examination results.

14. LIFE OF THE AGREEMENT

14.1 Unless otherwise terminated by operation of law, Paragraph 14.2, or by acts of the parties in accordance with the terms of this Agreement, this Agreement will remain in effect from the Effective Date until the later of (i) the expiration or abandonment of the last of the Patent Rights licensed hereunder or (ii) nine (9) years from the market introduction of the last to be introduced Licensed Product that contains or is comprised of the Biological Material in the last country in which it is introduced. Licensee shall have a perpetual, fully-paid, worldwide, non-exclusive license under The Regents' rights in and to the Property Rights to make (propagate) and use the Biological Materials to make, use and Sell those Licensed Products for which the Licensee has

paid an Earned Royalty to The Regents under this Agreement on a country by country basis for the longer of a period of nine (9) years or the life of the Patent Rights (if Patent Rights existed in a given country), in the United States and in other countries where The Regents may lawfully grant such licenses, only in the Field of Use.

14.2 This Agreement will automatically terminate without the obligation to provide 60 days' notice as set forth in Article 15 (Termination By The Regents) upon the filing of a petition for relief under the United States Bankruptcy Code by or against the Licensee as a debtor or alleged debtor.

14.3 Any termination or expiration of this Agreement will not affect the rights and obligations set forth in the following Articles:

Article 1	Definitions
Paragraph 5.8	Late Payments
Article 6	License Issue Fee
Article 8	Payments on Sublicenses
Paragraphs 9.1 and 9.3	Earned Royalties and Minimum Annual Royalties
Article 13	Books and Records
Article 14	Life of the Agreement
Article 17	Disposition of Licensed Products on Hand Upon Termination or Expiration
Article 18	Use of Names and Trademarks
Article 19	Limited Warranty
Article 20	Limitation of Liability
Paragraphs 21.4 & 21.8	Patent Prosecution and Maintenance
Article 24	Indemnification

Article 25	Notices
Article 29	Governing Laws; Venue; Attorneys Fees
Article 32	Confidentiality

14.4 The termination or expiration of this Agreement will not relieve the Licensee of its obligation to pay any fees, royalties or other payments owed to The Regents at the time of such termination or expiration and will not impair any accrued right of The Regents, including the right to receive Earned Royalties in accordance with Articles 8 (Payments on Sublicenses), 9 (Earned Royalties and Minimum Annual Royalties) and 17 (Disposition of Licensed Products Upon Termination or Expiration).

15. TERMINATION BY THE REGENTS

If the Licensee fails to perform or violates any term or covenant of this Agreement, then The Regents may give written notice of such default ("Notice of Default") to the Licensee. If the Licensee fails to repair such default within [**] days after the effective date of such notice, then The Regents will have the right to immediately terminate this Agreement and its licenses by providing a written notice of termination ("Notice of Termination") to the Licensee.

16. TERMINATION BY LICENSEE

The Licensee has the right at any time to terminate this Agreement by providing a Notice of Termination to The Regents. Moreover, the Licensee will be entitled to terminate the rights under Patent Rights on a country-by-country basis by giving notice in writing to The Regents. Termination of this Agreement (but not termination of any patents or patent applications under Patent Rights, which termination is subject to Paragraph 21.8) will be effective sixty (60) days from the effective date of such notice.

17. DISPOSITION OF LICENSED PRODUCT UPON TERMINATION OR EXPIRATION

17.1 Upon termination (but not expiration) of this Agreement, within a period of [**] days after the date of termination, the Licensee is entitled to dispose of all previously made or partially made Licensed Product, but no more provided that the Sale or use of such Licensed Product is subject to the terms of this Agreement, including, but not limited to, the rendering of reports and payment of Earned Royalties, Sublicense Fees and any other payments therefore required under this Agreement. The Licensee may not otherwise make, Sell, offer for Sale or import Licensed Products, or practice the Licensed Method after the date of termination.

17.2 If applicable Patent Rights exist at the time of any making, Sale, offer for Sale, or import of a Licensed Product, then Earned Royalties shall be paid at the times provided herein and royalty reports shall be rendered in connection therewith, notwithstanding the absence of applicable Patent Rights with respect to such Licensed Product at any later time. Any fees or other payments owed to The Regents at the time of expiration not based on the Sales of a Licensed Product will be paid to The Regents at the time such fee or other payment would have been due had this Agreement not expired.

18. USE OF NAMES AND TRADEMARKS

Nothing contained in this Agreement will be construed as conferring any right to either party to use in advertising, publicity or other promotional activities any name, trade name, trademark or other designation of the other party (including a contraction, abbreviation or simulation of any of the foregoing). Without the Licensee's consent case-by-case, The Regents and [**] may list Licensee's name as a licensee of technology without further identifying the technology. Unless required by law or unless consented to in writing by Executive Director, Office of Technology Transfer of The Regents, the use by the Licensee of the name "The Regents of the University of California" or the name of any campus of the University of California in advertising, publicity or other promotional activities is expressly prohibited. Unless required by law or unless consented to in writing by Vice President, Business Development of [**], the use by the Licensee of the name "[**]" in advertising, publicity or other promotional activities is expressly prohibited. The

Licensee's requests under this Article 18 may be made by e-mail or fax and shall be directed to such Executive Director or Vice President, and the Executive Director or Vice President shall approve or disapprove each request by e-mail, fax or other writing.

19. LIMITED WARRANTY

19.1 The Regents warrants to the Licensee that it has the lawful right to grant this license.

19.2 Except as expressly set forth in this Agreement, this license and the associated Invention, Patent Rights, Licensed Products, Licensed Methods and any Biological Materials are provided by The Regents and/or [**] WITHOUT WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER WARRANTY OF ANY KIND,

EXPRESS OR IMPLIED. THE REGENTS MAKES NO EXPRESS OR IMPLIED REPRESENTATION OR WARRANTY THAT THE INVENTION, PATENT RIGHTS, LICENSED PRODUCTS, LICENSED METHODS OR BIOLOGICAL MATERIALS WILL NOT INFRINGE ANY PATENT, COPYRIGHT, TRADEMARK OR OTHER RIGHTS.

19.3 This Agreement does not:

19.3.1 express or imply a warranty or representation as to the validity, enforceability, or scope of any Patent Rights or Property Rights; or

19.3.2 express or imply a warranty or representation that anything made, used, Sold, offered for Sale or imported or otherwise exploited under any license granted in this Agreement is or will be free from infringement of patents, copyrights, or other rights of third parties; or

19.3.3 obligate The Regents or [**] to bring or prosecute actions or suits against third parties for patent infringement except as provided in Article 23 (Patent Infringement); or

19.3.4 confer by implication, estoppel or otherwise any license or rights under any patents or other rights of The Regents or [**] other than Patent Rights and Property Rights, regardless of whether such patents are dominant or subordinate to Patent Rights; or

19.3.5 confer by implication, estoppel or otherwise any license or rights under any patents or other rights of the Licensee, regardless of whether such patents are dominant or subordinate to Patent Rights or Property Rights; or

19.3.6 obligate The Regents or [**] to furnish any New Developments, know-how, technology or information not provided in Patent Rights or Property Rights; or

19.3.7 obligate The Regents or [**] to update the technology in Property Rights.

20. LIMITATION OF LIABILITY

NEITHER THE REGENTS NOR [**] WILL BE LIABLE FOR ANY LOST PROFITS, COSTS OF PROCURING SUBSTITUTE GOODS OR SERVICES, LOST BUSINESS,

ENHANCED DAMAGES FOR INTELLECTUAL PROPERTY INFRINGEMENT OR ANY INDIRECT, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR OTHER SPECIAL DAMAGES SUFFERED BY LICENSEE, SUBLICENSEES, JOINT VENTURES, OR AFFILIATES ARISING OUT OF OR RELATED TO THIS AGREEMENT FOR ALL CAUSES OF ACTION OF ANY KIND (INCLUDING TORT, CONTRACT, NEGLIGENCE, STRICT LIABILITY AND BREACH OF WARRANTY) EVEN IF THE REGENTS OR [**] HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. EXCEPT FOR LIABILITY AS A RESULT OF LICENSEE'S BREACH OF THE LICENSE GRANTED IN SECTION 2.1 BY EXCEEDING THE FIELD OF USE OR DAMAGES AWARDED RELATED TO LICENSEE'S INDEMNITY OBLIGATIONS UNDER THIS AGREEMENT, IN NO EVENT SHALL LICENSEE, OR ITS SUBLICENSEES, JOINT VENTURES, AFFILIATES OR DEVELOPMENT PARTNERS, OR THEIR RESPECTIVE DIRECTORS, OFFICERS OR EMPLOYEES, BE LIABLE FOR INDIRECT, OR INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR OTHER SPECIAL DAMAGES REGARDLESS OF WHETHER LICENSEE SHALL BE ADVISED, SHALL HAVE OTHER REASON TO KNOW, OR IN FACT SHALL KNOW OF THE POSSIBILITY OF THE FOREGOING.

21. PATENT PROSECUTION AND MAINTENANCE

21.1 As long as the Licensee has [**] Patent Prosecution Costs as provided for in this Article 21 (Patent Prosecution and Maintenance), The Regents will diligently prepare, file, prosecute and maintain the United States and foreign patent applications and patents comprising Patent Rights using counsel of its choice, reasonably acceptable to the Licensee. Notwithstanding the above, in the event that the Licensee has rejected three (3) choices of prosecution counsel, then The Regents shall have the right to use counsel of its choice without Licensee's assent. The Regents' counsel will take instructions only from The Regents. The Regents will provide the Licensee with copies of all relevant documentation so that the Licensee will be informed of the continuing preparation, filing, prosecution, maintenance and decisions to pursue patentability opinions, re-examinations, re-issues, interferences and oppositions and may comment upon such documentation sufficiently in advance of any initial deadline for filing a response or other document, provided, however, that if the Licensee has not commented upon such documentation in a reasonable time for The Regents to sufficiently consider the Licensee's

comments prior to a deadline with the relevant government patent office, or The Regents must act to preserve the Patent Rights, The Regents will be free to respond without consideration of the Licensee's comments, if any. The Regents will provide the Licensee, either itself or through its patent attorney, with copies of all documents promptly upon filing. The Licensee agrees to keep this documentation confidential as provided for in Article 32 (Confidentiality).

21.2 The Regents shall use reasonable efforts to amend any patent application to include claims reasonably requested by the Licensee to protect the products and services contemplated to be Sold, or the Licensed Method to be practiced, under this Agreement.

21.3 The Licensee will apply for an extension of the term of any patent included within the Patent Rights if appropriate under the Drug Price Competition and Patent Term Restoration Act of 1984 and/or European, Japanese and other foreign or domestic counterparts or successors of this law. The Licensee shall prepare all documents and The Regents agrees to execute the documents and to take additional action as the Licensee reasonably requests in connection therewith. Licensee shall be liable for [**] relating to such application.

21.4 The Licensee will [**] of preparing, filing, prosecuting and maintaining the United States and foreign patent applications elected by Licensee under this Paragraph 21.4 and contemplated by this Agreement ("Patent Prosecution Costs") as provided for in Paragraphs 21.5 and 21.6. Patent Prosecution Costs billed by The Regents' counsel will be [**] to the Licensee and are due within [**] days of rebilling by The Regents. Invoices for Patent Prosecution Costs [**] by The Regents will contain a description of the services and activities (as provided to The Regents by its counsel) that are being [**] to the Licensee. These Patent Prosecution Costs will include, without limitation, patent prosecution costs for the Invention incurred by The Regents prior to the execution of this Agreement and any patent prosecution costs that may be incurred for patentability opinions, re-examinations, re-issues, interferences, oppositions or inventorship determinations.

21.5 For Patent Rights Group B, the Licensee will [**] Patent Prosecution Costs that have been incurred by The Regents and that have not been reimbursed (not including any reimbursement that The Regents may have received under the Interinstitutional Agreement with [**]) by an optionee or licensee. Prior Patent Prosecution Costs will be due upon execution of this Agreement and billing by The Regents and are at least [**] cents ($[**] (to be updated prior to execution)). If the license granted under Paragraph 2.3 ever becomes non-exclusive for Patent

Rights Group B as to the therapeutic applications, then the Licensee will bear the lesser of [**] or [**] of the Patent Prosecution Costs on a going forward basis, that have been incurred by The Regents and that have not been reimbursed by an optionee or licensee (not including any reimbursement that The Regents may receive under any interinstitutional agreement), where [**] by The Regents to each patent or patent application under Patent Rights Group B that are in effect at the time the payment is due, not including the license granted to the United States Government and not including any licenses granted to third parties where the rights granted are limited to the right to make and use for internal drug discovery purposes.

21.6 For Patent Rights Group A, the Licensee will bear the lesser of [**] or [**] of the Patent Prosecution Costs that have been incurred by The Regents and that have not been reimbursed by an optionee or licensee (not including any reimbursement that The Regents may receive under any interinstitutional agreement), where [**] by The Regents to each patent or patent application under Patent Rights Group A that are in effect at the time payment is due, not including the license granted to the United States Government and not including any licenses granted to third parties where the rights granted are limited to the right to make and use for internal drug discovery purposes. Prior Patent Prosecution Costs will be due upon execution of this Agreement and billing by The Regents and are at least [**] cents ($[**] (to be updated prior to execution)).

21.7 The Licensee may request that The Regents obtain patent protection on the Invention in foreign countries, if available and if it so desires. After receiving notice of a deadline from The Regents or its patent counsel, the Licensee will notify The Regents of its decision to obtain or maintain foreign patents or applications not less than [**] days prior to the deadline for any payment, filing or action to be taken in connection therewith. This notice concerning foreign filing must be in writing, must identify the countries desired and must reaffirm the Licensee's obligation to pay the Patent Prosecution Costs thereof. The absence of such a notice from the Licensee to The Regents will be considered an election not to obtain or maintain foreign Patent Rights.

21.8 The Licensee will be obligated to pay any Patent Prosecution Costs incurred during the [**]-month period after receipt by either party of a Notice of Termination, even if the invoices for such Patent Prosecution Costs are received by the Licensee after the end of the [**]-month period following receipt of a Notice of Termination. The Licensee may terminate its

obligation to pay Patent Prosecution Costs with respect to any given patent application or patent under Patent Rights in any or all designated countries upon [**]-months' written notice to The Regents. The Licensee will, however, be obligated to pay Patent Prosecution Costs with respect to any action agreed to, or requested by, the Licensee prior to its Notice of Termination. Notwithstanding the above, in the event that The Regents elects to no longer continue to pursue any patent or patent application under Patent Rights that the Licensee has designated in its Notice of Termination, The Regents will use reasonable efforts to curtail Patent Prosecution Costs with respect to such patent application or patent under Patent Rights in any or all countries designated by the Licensee. The Regents may continue prosecution and/or maintenance of such application(s) or patent(s) at its sole discretion and expense, provided, however, that the Licensee will have no further right or licenses thereunder. Non-payment of Patent Prosecution Costs may be deemed by The Regents as an election by the Licensee not to maintain such application(s) or patent(s).

21.9 The Regents may file, prosecute or maintain patent applications or patents at its own expense in any country in which the Licensee has not elected to file, prosecute or maintain patent applications or patents in accordance with this Article 21 (Patent Prosecution and Maintenance) and those applications, resultant patents and patents will not be subject to this Agreement.

22. PATENT MARKING

The Licensee will mark all Licensed Products made, used or Sold under the terms of this Agreement or their containers in accordance with the applicable patent marking laws.

23. PATENT INFRINGEMENT

23.1 In the event that The Regents (to the extent of the actual knowledge of the licensing professional responsible for the administration of this Agreement) or the Licensee learns of infringement in the Field of Use of potential commercial significance of any patent licensed under this Agreement, the knowledgeable party will provide the other (i) with written notice of such infringement and (ii) with any evidence of such infringement available to it (the "Infringement Notice"). During the period in which, and in the jurisdiction where, the Licensee has exclusive rights under this Agreement, neither The Regents nor the Licensee will notify a possible infringer of infringement or put such infringer on notice of the existence of any Patent Rights without first obtaining consent of the other. If the Licensee puts such infringer on notice of the existence of any Patent

Rights with respect to such infringement without first obtaining the written consent of The Regents and if a declaratory judgment action is filed by such infringer against The Regents, then Licensee's right to initiate a suit against such infringer for infringement under Paragraph 23.2 below will terminate immediately without the obligation of The Regents to provide notice to the Licensee. Both The Regents and the Licensee will use their diligent efforts to cooperate with each other to terminate such infringement without litigation.

23.2 If infringing activity of potential commercial significance by the infringer has not been abated within [**] days following the date the Infringement Notice takes effect, then the Licensee may institute suit for patent infringement against the infringer. The Regents may voluntarily join such suit at its own expense, but may not thereafter commence suit against the infringer for the acts of infringement that are the subject of the Licensee's suit or any judgment rendered in that suit. The Licensee may not join The Regents as a party in a suit initiated by the Licensee without The Regents' prior written consent. If, in a suit initiated by the Licensee, The Regents is involuntarily joined other than by the Licensee, then the Licensee will [**] by The Regents arising out of such suit, including but not limited to, any [**] of counsel that The Regents selects and retains to represent it in the suit.

23.3 If, within [**] days following the date the Infringement Notice takes effect, infringing activity of potential commercial significance by the infringer has not been abated and if the Licensee has not brought suit against the infringer, then The Regents may institute suit for patent infringement against the infringer. If The Regents institutes such suit, then the Licensee may not join such suit without The Regents' consent and may not thereafter commence suit against the infringer for the acts of infringement that are the subject of The Regents' suit or any judgment rendered in that suit.

23.4 Notwithstanding anything to the contrary in this Agreement, in the event that the infringement or potential infringement pertains to an issued patent included within the Patent Rights and written notice is given under the Drug Price Competition and Patent Term Restoration Act of 1984 (and/or foreign or domestic counterparts or successors of this Law), then the party in receipt of such notice under the Act (in the case of The Regents, to the extent of the actual knowledge of the Licensing Officer responsible for the administration of this Agreement) shall provide the Infringement Notice to the other party promptly. If the time period is such that

the Licensee will lose the right to pursue legal remedy for infringement by not notifying a third party or by not filing suit, the combined notification period and the time period to file suit will be accelerated to within [**] days of the date of such notice to either party under the Act.

23.5 Any recovery or settlement received in connection with any suit will first be shared by The Regents and the Licensee equally to cover any litigation costs each incurred and next shall be paid to The Regents or the Licensee to cover any litigation costs it incurred in excess of the litigation costs of the other. In any suit initiated by the Licensee, any recovery in excess of litigation costs will be shared between Licensee and The Regents as follows: (a) for any recovery other than amounts paid for willful infringement: (i) The Regents will receive [**] percent ([**]%) of the recovery if The Regents was not a party in the litigation and did not incur any litigation costs, (ii) The Regents will receive [**] percent ([**]%) of the recovery if The Regents was a party in the litigation whether joined as a party under the provisions of Paragraph 23.2 or otherwise, but did not incur any litigation costs, and (iii) The Regents will receive [**] percent ([**]%) of the recovery if The Regents incurred more than [**] litigation costs in connection with the litigation; and (b) for any recovery for willful infringement, The Regents will receive [**] percent ([**]%) of the recovery. In any suit initiated by The Regents, any recovery in excess of litigation costs will belong to The Regents. The Regents and the Licensee agree to be bound by all determinations of patent infringement, validity and enforceability (but no other issue) resolved by any adjudicated judgment in a suit brought in compliance with this Article 23 (Patent Infringement).

23.6 Any agreement made by the Licensee for purposes of settling litigation or other dispute shall comply with the requirements of Article 3 (Sublicenses) of this Agreement. Any up-front fees (e.g., fees, royalties on past sales, or other payments) paid to the Licensee as part of a sublicense or other agreement made in the settlement of an infringement action will be applied first to reimburse the legal expenses and legal fees of the Licensee (and The Regents, if applicable) relating to such suit. The balance remaining of any such up-front fees will be considered revenue from a Sublicensee and The Regents will receive [**] percent ([**]%) of such amount.

23.7 Each party will cooperate with the other in litigation proceedings instituted hereunder but at the expense of the party who initiated the suit (unless such suit is being jointly prosecuted by the parties).

23.8 Any litigation proceedings will be controlled by the party bringing the suit, except that The Regents may be represented by counsel of its choice in any suit brought by the Licensee, with counsel paid for the Licensee in case of conflict of interest, and by The Regents in any other cases. In any suit brought by The Regents, the Licensee may be represented by counsel of its choice, with counsel paid for by The Regents in case of conflict of interest, and by the Licensee in any other cases.

24. INDEMNIFICATION

24.1 The Licensee will, and will require its Sublicensees to, indemnify, hold harmless and defend The Regents, [**], the sponsors of the research that led to the Invention and the development of the Original Materials, and the inventors of the Original Materials and any invention claimed in patents or patent applications under Patent Rights (including the Licensed Products, Licensed Services and Licensed Methods contemplated thereunder) and their employers, and the officers, employees and agents of any of the foregoing, against any and all third party claims, suits, losses, damage, costs, fees and expenses resulting from, or arising out of, the exercise of this license or any sublicense. This indemnification will include, but not be limited to, any product liability. If The Regents, in its sole discretion, believes that there will be a conflict of interest in being represented by counsel chosen by the Licensee to defend The Regents in accordance with this Paragraph 24.1, then The Regents may retain counsel of its choice to represent it and the Licensee will pay all legal expenses for such representation.

24.2 The Licensee, at its sole cost and expense, will insure its activities in connection with any work performed hereunder and will obtain and maintain the following insurance:

24.2.1 Commercial Form General Liability Insurance (contractual liability included) with limits as follows:

Each Occurrence	$	[**]
Personal Injury	$	[**]
General Aggregate (commercial form only)	$	[**]

24.3 Notwithstanding the above, no later than the earlier of: i) [**] days before the anticipated date of market introduction of any Licensed Product; or ii) [**] days before the first use of any Licensed Product in a human under this Agreement (including without limitation in pre-commercial clinical trials), the Licensee, at its sole cost and expense, shall insure its

activities in connection with any work performed under this Agreement and obtain, keep in force and maintain the following insurance:

24.3.1 Commercial Form General Liability Insurance (contractual liability included) with limits as follows:

Each Occurrence	$	[**]
Products/Completed Operations Aggregate	$	[**]
Personal and Advertising Injury	$	[**]
General Aggregate (commercial form only)	$	[**]

If the above insurance is written on a claims-made form, it shall continue for [**] years following termination or expiration of this Agreement. The insurance shall have a date of placement coinciding with a date no later than the earlier of: [**] days before the anticipated date of market introduction of any Licensed Product or [**] days before the first use of any Licensed Product in a human

24.4 The coverage and limits referred to in Paragraph 24.2.1 and 24.3.1 above will not in any way limit the liability of the Licensee under this Article 24 (Indemnification). Upon the execution of this Agreement and upon the change in coverage provided for in Paragraph 24.3, the Licensee will furnish The Regents with certificates of insurance evidencing compliance with all requirements. Such certificates will:

- Provide for [**] days' ([**] days' for non-payment of premium) advance written notice to The Regents of any cancellation of insurance coverage; the Licensee will promptly notify The Regents of any material modification of the insurance coverage;
- Indicate that The Regents has been endorsed as an additional insured under the coverage described above in Paragraph(s) 24.2.1 and 24.3.1; and
- Include a provision that the coverage will be primary and will not participate with, nor will be excess over, any valid and collectable insurance or program of self-insurance maintained by The Regents.

24.5 The Regents will promptly notify the Licensee in writing of any claim or suit brought against The Regents for which The Regents intends to invoke the provisions of this Article 24 (Indemnification). The Regents will cooperate with the Licensee as reasonably

requested, at the Licensee's expense. The Licensee will have sole control of the defense and any settlement, provided that the Licensee may not admit liability or wrong doing on the part of The Regents without The Regents' written consent. The Licensee will keep The Regents informed of its defense of any claims pursuant to this Article 24 (Indemnification).

25. NOTICES

25.1 Any notice or payment required to be given to either party under this Agreement will be in writing and will be deemed to have been properly given and to be effective as of the date specified below if delivered to the respective address given below or to another address as designated by written notice given to the other party:

25.1.1 on the date of delivery if delivered in person;

25.1.2 on the date of mailing if mailed by first-class certified mail, postage paid; or

25.1.3 on the date of mailing if mailed by any global express carrier service that requires the recipient to sign the documents demonstrating the delivery of such notice or payment.

In the case of Licensee:	Merrimack Pharmaceuticals, Inc. 101 Binney Street Cambridge, MA 02142 Attention: President and CEO
with a copy to:	Lawrence S. Wittenberg, Esq. Goodwin Procter, LLP Exchange Place 53 State Street Boston, MA 02109
In the case of The Regents:	The Regents of the University of California Office of Technology Transfer 1111 Franklin Street, 5th Floor Oakland, CA 94607-5200 Attention: Executive Director Research Administration and Technology Transfer RE: UC Case Nos. [**]

26. ASSIGNABILITY

This Agreement is personal to the Licensee. The Licensee may not assign or transfer this Agreement, including by merger, operation of law, or otherwise, without The Regents' prior written consent, except that such consent will not be required in the case of assignment or transfer to a party that succeeds to all or substantially all of Licensee's business or assets relating to this Agreement, whether by sale, merger, operation of law or otherwise, provided that such assignee or transferee promptly agrees to be bound by the terms and conditions of this Agreement and signs The Regents' standard substitution of party letter (the form of which is attached hereto as Appendix C). Any attempted assignment by the Licensee in violation of this Article 26 (Assignability) will be null and void. This Agreement is binding upon and will inure to the benefit of The Regents, its successors and assigns.

27. WAIVER

No waiver by either party of any breach or default of any of the covenants or agreements contained herein will be deemed a waiver as to any subsequent and/or similar breach or default. No waiver will be valid or binding upon the parties unless made in writing and signed by a duly authorized officer of each party.

28. FORCE MAJEURE

28.1 Except for the Licensee's obligation to make any payments to The Regents hereunder, the parties shall not be responsible for any failure to perform due to the occurrence of any events beyond their reasonable control which render their performance impossible or onerous, including, but not limited to: accidents (environmental, toxic spill, etc.); acts of God; biological or nuclear incidents; casualties; earthquakes; fires; floods; governmental acts; orders or restrictions; inability to obtain suitable and sufficient labor, transportation, fuel and materials; local, national or state emergency; power failure and power outages; acts of terrorism; strike; and war.

28.2 Either party to this Agreement, however, will have the right to terminate this Agreement upon thirty (30) days' prior written notice if either party is unable to fulfill its obligations under this Agreement due to any of the causes specified in Paragraph 28.1 for a period of one (1) year.

29. GOVERNING LAWS; VENUE; ATTORNEYS FEES

29.1 THIS AGREEMENT WILL BE INTERPRETED AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF CALIFORNIA, excluding any choice of law rules that would direct the application of the laws of another jurisdiction and without regard to which party drafted particular provisions of this Agreement, but the scope and validity of any patent or patent application will be governed by the applicable laws of the country of such patent or patent application.

29.2 Any legal action brought by the parties hereto relating to this Agreement will be conducted in San Francisco, California.

29.3 The prevailing party in any suit related to this Agreement will be entitled to recover its reasonable attorneys' fees in addition to its costs and necessary disbursements.

30. GOVERNMENT APPROVAL OR REGISTRATION

If this Agreement or any associated transaction is required by the law of any nation to be either approved or registered with any governmental agency, the Licensee will assume all legal obligations to do so. The Licensee will notify The Regents if it becomes aware that this Agreement is subject to a United States or foreign government reporting or approval requirement. The Licensee will make all necessary filings and pay all costs including fees, penalties and all other out-of-pocket costs associated with such reporting or approval process.

31. COMPLIANCE WITH LAWS

The Licensee shall comply with all applicable international, national, state, regional and local laws and regulations material to performing its obligations hereunder and in its use, manufacture, Sale or import of the Licensed Products or practice of the Licensed Method. The Licensee will observe all applicable United States and foreign laws with respect to the transfer of Licensed Products and related technical data to foreign countries, including, without limitation, the International Traffic in Arms Regulations (ITAR) and the Export Administration Regulations. The Licensee shall manufacture Licensed Products and practice the Licensed Method in compliance with applicable government importation laws and regulations of a particular country for Licensed Products made outside the particular country in which such Licensed Products are used, Sold or otherwise exploited.

32. CONFIDENTIALITY

32.1 The Licensee and The Regents will treat and maintain the other party's proprietary business, patent prosecution, software, engineering drawings, process and technical information and other proprietary information, including the negotiated terms of this Agreement and any sublicense agreements, progress reports and royalty reports ("Proprietary Information") in confidence using at least the same degree of care as the receiving party uses to protect its own proprietary information of a like nature, but no less than a reasonable degree of care, from the date of disclosure until [**] years after the termination or expiration of this Agreement. This confidentiality obligation will apply to the information defined as "Data" under the Secrecy Agreements (UC Control Nos. [**]) and such Data will be treated as Proprietary Information hereunder.

32.2 For the sole purpose of performing under the terms of this Agreement, The Licensee and The Regents may use and disclose Proprietary Information to their employees, agents, consultants, contractors and, in the case of the Licensee, its Sublicensees, its non-employee directors and its potential investors, and in the case of The Regents, [**], provided that such parties are bound by a like duty of confidentiality as that found in this Article 32 (Confidentiality). Notwithstanding anything to the contrary contained in this Agreement, The Regents and [**] may release this Agreement, including any terms contained herein and information regarding royalty payments or other income received in connection with this Agreement to their respective inventors and senior administrative officials and, in the case of The Regents, individual Regents, upon their request. If such release is made, The Regents and [**] will request that such terms be kept in confidence in accordance with the provisions of this Article 32 (Confidentiality). In addition, notwithstanding anything to the contrary in this Agreement, if a third party inquires whether a license to Patent Rights is available, then The Regents and [**] may disclose the existence of this Agreement and the extent of the grant in Articles 2 (Grant) and 3 (Sublicenses) and related definitions to such third party, but will not disclose the name of the Licensee unless Licensee has already made such disclosure publicly.

32.3 All written Proprietary Information will be labeled or marked confidential or proprietary. If the Proprietary Information is orally disclosed, it will be reduced to writing or some other physically tangible form, marked and labeled as confidential or proprietary by the

disclosing party and delivered to the receiving party within thirty (30) days after the oral disclosure.

32.4 Nothing contained herein will in any way restrict or impair the right of the Licensee, The Regents or [**] to use or disclose any Proprietary Information:

32.4.1 that recipient can demonstrate by written records was previously known to it prior to its disclosure by the disclosing party;

32.4.2 that recipient can demonstrate by written records is now, or becomes in the future, public knowledge other than through acts or omissions of recipient;

32.4.3 that recipient can demonstrate by written records was lawfully obtained without restrictions on the recipient from sources independent of the disclosing party; and

32.4.4 that The Regents and/or [**] is required to disclose pursuant to the California Public Records Act or other applicable law, provided that the party subject to the disclosure obligation uses reasonable efforts to give the other party sufficient notice of such required disclosure to allow such party the reasonable opportunity to object to, and to take legal action to prevent, such disclosure; and

32.4.5 that recipient can demonstrate by written records results from research and development of the receiving party independent of such disclosure.

The Licensee or The Regents also may use or disclose Proprietary Information that is required to be disclosed (i) to a governmental entity or agency in connection with seeking any governmental or regulatory approval, governmental audit, or other governmental contractual requirement or (ii) by law, provided that the recipient uses reasonable efforts to give the party owning the Proprietary Information sufficient notice of such required disclosure to allow the party owning the Proprietary Information reasonable opportunity to object to, and to take legal action to prevent, such disclosure.

32.5 Upon termination of this Agreement, the Licensee and The Regents will, and The Regents will request that [**], destroy or return any of the disclosing party's Proprietary Information in its possession within fifteen (15) days following the termination of this Agreement. The Licensee and The Regents will provide each other, within thirty (30) days

following termination, with written notice that such Proprietary Information has been returned or destroyed. Each party may, however, retain one copy of such Proprietary Information for archival purposes in non-working files. Under the terms of the Interinstitutional Agreement with [**], The Regents has the

right to request that [**] destroy or return to The Regents within fifteen (15) days following termination of this Agreement any Proprietary Information provided to [**] by The Regents. However, [**] may retain one copy of such Proprietary Information for archival purposes in non-working files.

32.6 With regard to Biological Material, the Licensee agrees:

32.6.1 not to use the Biological Materials except for the sole purpose of performing under the terms of this Agreement;

32.6.2 not to transfer the Biological Materials to others (except to its Sublicensees and others, such as employees, agents or consultants who are bound to the Licensee or the Sublicensee by like obligations conditioning and restricting access, use and continued use of Biological Materials) without the express written permission of The Regents, except that the Licensee is not prevented from transferring any Biological Material that is lawfully obtained by the Licensee from sources independent of The Regents;

32.6.3 to safeguard the Biological Materials against disclosure and transmission to others with the same degree of care as it exercises with its own biological materials of a similar nature;

32.6.4 to destroy all copies of the Biological Materials at the termination of this Agreement within fifteen (15) days following the effective date of such termination; and

32.6.5 to destroy all copies of the Biological Material at the expiration of this Agreement unless the Licensee is using the Biological Material as provided for in Paragraph 14.1.

33. MISCELLANEOUS

33.1 The headings of the several sections are inserted for convenience of reference only and are not intended to be a part of or to affect the meaning or interpretation of this Agreement.

33.2 This Agreement is not binding on the parties until it has been signed below on behalf of each party. It is then effective as of the Effective Date.

33.3 No amendment or modification of this Agreement is valid or binding on the parties unless made in writing and signed on behalf of each party.

33.4 This Agreement embodies the entire understanding of the parties and supersedes all previous communications, representations or understandings, either oral or written, between the parties relating to the subject matter hereof. The following Agreements are hereby terminated: Secrecy Agreement (UC Control No. [**]) for UC Case No. [**] with an effective date of January 20, 2004; a Secrecy Agreement (UC Control No. [**], for UC Case No. [**] with an effective date of May 16, 2003; a Material Evaluation Agreement (UC Control No. [**]) for UC Case No. [**] with an effective date of August 11, 2003; a Secrecy Agreement for Data and Biological Materials (UC Control Nos. [**] and [**]) for UC Case Nos. [**] and [**] with effective dates of September 3, 2003.

33.5 In case any of the provisions contained in this Agreement is held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability will not affect any other provisions of this Agreement and this Agreement will be construed as if such invalid, illegal or unenforceable provisions had never been contained in it.

33.6 This Agreement includes the attached Appendix(es) A, B and C.

33.7 No provisions of this Agreement are intended or shall be construed to confer upon or give to any person or entity other than The Regents and the Licensee any rights, remedies or other benefits under, or by reason of, this Agreement.

33.8 In performing their respective duties under this Agreement, each of the parties will be operating as an independent contractor. Nothing contained herein will in any way constitute any association, partnership, or joint venture between the parties hereto, or be construed to evidence the intention of the parties to establish any such relationship. Neither party will have the power to bind the other party or incur obligations on the other party's behalf without the other party's prior written consent.

IN WITNESS WHEREOF, both The Regents and the Licensee have executed this Agreement, in duplicate originals, by their respective and duly authorized officers on the day and year written.

MERRIMACK PHARMACEUTICALS, INC.		THE REGENTS OF THE UNIVERSITY OF CALIFORNIA	
By:	/s/ Vincent F. Simmon (Signature)	By:	/s/ William T. Tucker (Signature)
Name:	Vincent F. Simmon (Please Print)	Name:	William T. Tucker
Title:	COO	Title:	Interim Executive Director Research Administration and Technology Transfer

Appendix A

[**].

Appendix B - Original Materials

UC Case No. [**].

UC Case No. [**].

UC Case No. [**].

Appendix C

UC Case No. XX-XXX

CONSENT TO SUBSTITUTION OF PARTY

This substitution of parties ("Agreement") is effective this day of , 200 , among The Regents of the University of California ("The Regents), a California corporation, having its statewide administrative offices at 1111 Franklin Street, 12th Floor, Oakland, California 94607-5200; [original Licensee name] [("XXX")], a [insert state] corporation, having a principal place of business at ; and [new licensee name] [("YYY")] a corporation, having a principal place of business at .

BACKGROUND

A. The Regents and [XXX] entered into a [type: Letter, Option or License] Agreement effective (UC Control No. - -), entitled ("[type] Agreement"), wherein [XXX] was granted certain rights.

B. [XXX] desires that [YYY] be substituted as [Licensee] (defined in the [type] Agreement) in place of [XXX], and The Regents is agreeable to such substitution.

C. [YYY] has read the [type] Agreement and agrees to abide by its terms and conditions.

The parties agree as follows:

1. [YYY] assumes all liability and obligations under the [type] Agreement and is bound by all its terms in all respects as if it were the original [Licensee] of the [type] Agreement in place of [XXX].

2. [YYY] is substituted for [XXX], provided that [YYY] assumes all liability and obligations under the [type] Agreement as if [YYY] were the original party named as [Licensee] as of the effective date of the [type] Agreement.

3. The Regents releases [XXX] from all liability and obligations under the [type] Agreement arising before or after the effective date of this Agreement.

The parties have executed this Agreement in triplicate originals by their respective authorized officers on the following day and year.

[XXX] COMPANY

By: _____
(Signature)

Name: _____
(Please print)

Title: _____

Date: _____

[YYY] COMPANY

By: _____

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

By: _____

Name: [Licensing Officer Name]

Title: [Licensing Officer] Office of Technology Transfer

Date:

(Signature)

Name: _____
(Please print)

Title: _____

Date: _____

FIRST AMENDMENT TO LICENSE AGREEMENT BETWEEN THE REGENTS AND MERRIMACK PHARMACEUTICALS, INC.

This First Amendment ("First Amendment") to is made and effective this 17th day of November 2009 ("Amendment Effective Date") by and between The Regents of the University of California, a California corporation, having its statewide administrative offices at 1111 Franklin Street, 12th Floor, Oakland, California 94607-5200, acting through its Office of Technology Management, University of California San Francisco, 185 Berry Street, Suite 4603, San Francisco, CA 94107 ("The Regents") and Merrimack Pharmaceuticals, Inc., a Massachusetts corporation, having its principal place of business at One Kendall Square Suite B7201 Cambridge, MA 02139-1670 ("Merrimack").

BACKGROUND

A. The Regents and Merrimack entered into an License Agreement ("License Agreement") effective March 16, 2005 (UC Control Nos. [**] and [**]) for [**] (UC Case No. [**] (UC Case [**]), and [**] (UC Case No. [**]).

B. The Regents and Merrimack wish to amend the License Agreement as provided herein in order to amend certain due diligence deadlines and [**] milestone payments solely for the [**] Therapeutic Licensed Product.

NOW, THEREFORE, in view of the foregoing, the parties hereby agree as follows:

ARTICLE I DEFINITIONS

1.1 All definitions and paragraph numbers referred to in this First Amendment have the same meaning ascribed to them in the License Agreement.

ARTICLE II MILESTONE PAYMENTS

2.1 Paragraph 10.1 is deleted in its entirety and replaced with the following:

10.1. With respect to each Therapeutic Licensed Product, the Licensee will pay to The Regents the following non-refundable, non-creditable amounts, except that [**] each payment due under paragraphs 10.1.1 through 10.1.5 will be [**]:

10.1.1 [**] dollars ($[**]) upon the [**] Therapeutic Licensed Product; and

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10.1.2 [**] dollars ($[**]) for the [**] Therapeutic Licensed Product; and

10.1.3 [**] dollars ($[**]) upon the [**] Therapeutic Licensed Product; and

10.1.4 [**] dollars ($[**]) upon the [**] Therapeutic Licensed Product [**]; and

10.1.5 [**] dollars ($[**]) upon the [**] Therapeutic Licensed Product [**].

ARTICLE III DUE DILIGENCE

3.1 Paragraph 11.3 is deleted in its entirety and replaced with the following:

11.3 For Therapeutic Licensed Products, the Licensee will:

[**];

Notwithstanding the above, the Licensee will develop Therapeutic Licensed Products for Sale in the United States and will:

[**];

ARTICLE IV FEES

4.1 In consideration for the amendment of the License Agreement as provided in this First Amendment, Merrimack shall pay to The Regents a fee ("Amendment Fee") of [**] dollars ($[**]), payable in [**] installments as follows:

4.1.1 the [**] of [**] dollars ($[**]) is due within [**] days of the Amendment Effective Date.

4.1.2 The [**] of [**] dollars each ($[**]) are due on the [**] of the Amendment Effective Date, [**].

4.2 This Amendment Fee is non-refundable, non-cancelable and is not an advance or otherwise creditable against any royalties or other payments required to be paid under the terms of the License Agreement.

4.3 Any Extension Fees due to the Regents as per the terms of paragraph 11.6 of the License Agreement and any breach or default by Merrimack in connection with any failure by Merrimack to meet any due diligence deadlines prior to the Amendment Effective Date of this First Amendment are hereby waived.

ARTICLE V MISCELLANEOUS

5.1 This First Amendment shall be made part of the License Agreement and be governed by all its terms.

5.2 Except as expressly amended hereby, the License Agreement remains unchanged and in full force and effect.

5.3 This First Amendment may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

IN WITNESS WHEREOF, The Regents and Merrimack have executed this First Amendment in duplicate by their respective and duly authorized officers, as evidenced by their signatures below.

MERRIMACK PHARMACEUTICALS, INC.		THE REGENTS OF THE UNIVERSITY OF CALIFORNIA	
By:	/s/ Edward J. Stewart (Signature)	By:	/s/ Joel B. Kirschbaum (Signature)
Name:	Edward J Stewart	Name:	Joel B. Kirschbaum
Title:	SVP Business Development	Title:	Director, UCSF Office of Technology Management
Date:	11/10/09	Date:	11/17/09

Exhibit 10.22

CONFIDENTIAL
Execution Copy - 11-16-2009

Confidential Materials omitted and filed separately with the
Securities and Exchange Commission. Asterisks denote omissions.

COLLABORATION AGREEMENT

THIS COLLABORATION AGREEMENT (the "**Agreement**") is made as of November 16, 2009 (the "**Effective Date**"), by and between **ADIMAB, INC**., a Delaware corporation having an address at 16 Cavendish Court, Lebanon, NH 03766 ("**Adimab**") and **MERRIMACK PHARMACEUTICALS, INC.,** a Massachusetts corporation having an address at One Kendall Square, Suite B7201, Cambridge, MA 02139 ("**Merrimack**").

BACKGROUND

WHEREAS, Adimab is the leader in the business of yeast-based fully human antibody discovery using its proprietary core technology platform;

WHEREAS, Merrimack wishes to discover and develop as therapeutic and diagnostic products one or more antibodies directed to a disease-related biological target of interest to Merrimack;

WHEREAS, the Parties wish to collaborate to have Adimab discover antibodies directed against this disease-related biological target, and to have Merrimack determine their activity and have the option to license certain of these antibodies for development as a pharmaceutical product, all as more particularly set forth in this Agreement;

NOW, THEREFORE, in consideration of the foregoing premises and the mutual covenants set forth below, and for other good and valuable consideration, the receipt of which is hereby acknowledged, Adimab and Merrimack hereby agree as follows:

ARTICLE 1

DEFINITIONS.

The following initially capitalized terms have the following meanings (and derivative forms of them shall be interpreted accordingly):

1.1 "**Adimab Materials**" means any tangible biological or chemical materials (including all [**] and other [**] in the form of tangible biological or chemical materials) provided by Adimab to Merrimack under the Research Program[**].

1.2 "**Adimab Program Antibody Know-How**" means all Know-How Controlled by Adimab [**] that [**] for Merrimack [**] or [**] Program Antibodies as provided in the Research Plan, or [**]. The Adimab Program Antibody Know-How excludes [**] that is [**] or [**] than the [**] of the foregoing sentence. The Parties do not intend for Merrimack to obtain under this Agreement the ability or right to practice the Platform/Core Technology for antibody discovery purposes.

1.3 "**Adimab Program Antibody Patents**" means any and all Program Antibody Patents the subject invention of which is an Adimab Program Invention or a Joint Invention.

1.4 "**Adimab Program Inventions**" means all Program Inventions for which Adimab (or its Affiliate) has (meaning that it employs or has engaged as a consultant) at least one (1) person who would be a properly named inventor on the U.S. Patent claiming such invention, other than Joint Program Inventions. Inventorship for purposes of this definition, and all intellectual property-related definitions in this Agreement, shall be determined in accordance with United States patent law.

1.5 "**Affiliate**" means an entity that, directly or indirectly, through one or more intermediaries, controls, is controlled by or is under common control with a Party. For this purpose, "control" means the ownership of fifty percent (50%) or more of the voting securities entitled to elect the directors or management of the entity, or the actual power to elect or direct the management of the entity.

1.6 "**BLA**" means a Biologic License Application (as defined in the U.S. Federal Food, Drug, and Cosmetic Act, as amended, and the regulations promulgated thereunder (21 C.F.R. §§ 600-680) in the United States or a comparable filing in any other jurisdiction (i.e., a filing with a Regulatory Authority that must be made prior to importing, marketing and selling a biological product), in each case with respect to a Product.

1.7 "**Confidential Information**" has the meaning given in Section 6.1.

1.8 "**Control**" means, with respect to any Know-How or Patent, [**]other than pursuant to this Agreement[**]of the [**] as provided for in this Agreement without violating the terms of any written agreement with any Third Party.

1.9 "**Cover**" means, with respect to a particular item (which may be an antibody or a product) and a particular Patent, that such Patent claims or covers [**] of [**] of [**] or [**] or [**] or [**] of [**] of [**] of the [**] and/or [**] or [**] or [**] or [**] of [**], for [**] of the [**] of the [**] or [**] in the [**] in the [**] of a [**] on [**] in the [**] in the [**].

1.10 "**Diagnostic Product**" means a Product for the diagnosis of any human disease or condition.

1.11 "**EU**" means the European Union.

1.12 "**Evaluation Term**" means the time period beginning at the end of the Research Term and ending [**] months thereafter.

1.13 "**Field**" means treatment, prophylaxis and diagnosis of any and all diseases and all diseases and conditions in humans.

1.14 "**First Commercial Sale**" means, with respect to a Product in any country, the first sale, transfer or disposition for value or for end use or consumption of such Product in such country after BLA (or equivalent) approval (in the case of Therapeutic Products) or other Regulatory Approval (in the case of Diagnostic Products) has been achieved for such Product in such country.

1.15 "**Joint Inventions**" means any and all Program Inventions for which Adimab (or its Affiliate) and Merrimack (or its Affiliate) each have (meaning that each employs or has engaged as a consultant) at least one (1) person who would be a properly named inventor on the U.S. patent claiming such invention.

1.16 "**Joint Program Antibody Patent**" means any Program Antibody Patent the subject invention of which is a Joint Invention.

1.17 "**Joint Serendipitous Inventions**" means all Joint Inventions other than those claimed by Joint Program Antibody Patents or constituting Platform/Core Technology Improvements.

1.18 "**Know-How**" means all technical information and know-how, including inventions, discoveries, trade secrets, specifications, instructions, processes, formulae, materials (including cell lines, vectors, plasmids, nucleic acids and the like), methods, protocols, expertise and other technology applicable to formulations, compositions or products or to their manufacture, development, registration, use or marketing or to methods of assaying or testing them or processes for their manufacture, formulations containing them or compositions incorporating or comprising them, and including all biological, chemical, pharmacological, biochemical, toxicological, pharmaceutical, physical and analytical, safety, quality control, manufacturing, preclinical and clinical data, instructions, processes, formula, and expertise.

1.19 "**Licensed Antibody**" has the meaning given in Section 3.2.

1.20 "**Licensed Antibody Program Patents**" means those Program Antibody Patents that Cover one or more Licensed Antibody/ies.

1.21 "**Major EU Countries**" means Great Britain, France, Germany, Italy and Spain.

1.22 "**Major Market**" means any of the United States, the EU or Japan.

1.23 "**Merrimack Materials**" means any tangible biological or chemical materials (including antigen samples and other Know-How in the form of tangible biological or chemical materials) provided by Merrimack to Adimab under the Research Program.

1.24 "**Merrimack Program Antibody Patent**" means any Program Antibody Patent the subject invention of which is a Merrimack Program Invention.

1.25 "**Merrimack Program Inventions**" means all Program Inventions for which Merrimack (or its Affiliate) has (meaning that it employs or has engaged as a consultant) at least one (1) person who would be a properly named inventor on the U.S. Patent claiming such invention, other than Joint Program Inventions.

1.26 "**Net Sales**" means the gross amount invoiced by Merrimack, or its Affiliates, licensees or sublicensees for the sale of a Product, less any of the following applicable deductions to the extent actually granted and included in the invoiced amounts: [**], and [**] and [**], in [**] or [**] and [**] or [**], or [**] on [**] for [**] and [**]; or [**] for [**]. Even

if there is overlap between any of deductions [**] each individual item shall only be deducted once in each Net Sales calculation.

Net Sales calculated as described above shall be adjusted for Combination Products, as provided in Section 4.7. The same adjustment shall be applied to product bundles (in the countries where bundling is permitted).

Net Sales shall, as to any unit of Product, be calculated based on the first sale of such unit of Product by Merrimack or any of its Affiliates, licensees or sublicensees to a Third Party (other than a licensee or sublicensee). Net Sales excludes amounts from sales of Product between Merrimack and any of its Affiliates, licensees or sublicensees, *provided* that the Product quantities are intended for use in a clinical trial or in other research or development activities, as a free sample, or for resale (in circumstances in which if resold the resale will be included in the calculation of Net Sales).

If Merrimack (or its Affiliates, licensees or sublicensees) structure a commercial transfer of quantities of Product as something other than a "sale" such that Merrimack (or its Affiliates, licensees or sublicensees) receives value as a direct result of such other commercial transfer, and excluding the situation where the transfer is to provide a Product quantity for use in a clinical trial or in other research or development activities, as a free marketing sample or is intended for resale by Merrimack or its Affiliates, licensees or sublicensees, then such transfer shall be deemed to be a sale at the value received by Merrimack (or its Affiliates, licensees or sublicensees). For non-limiting example, if Merrimack (or its Affiliates, licensees or sublicensees) purports to lease Product rather than sell Product, the lease revenues would be included in the gross amounts invoiced that are used to calculate Net Sales. As another non-limiting example, if Merrimack (or its Affiliates, licensees or sublicensees) were to give away quantities of Product for free in connection with a sale transaction with the transferee in which the transferee purchases quantities of another product, a reasonable portion of the amounts paid by the transferee for the other product would be deemed to be gross sales amount allocable to a sale of the Product.

1.27 "**Option**" means Merrimack's option as described in Section 3.2.

1.28 "**Party**" means Adimab or Merrimack.

1.29 "**Patent**" means any patent application or patent anywhere in the world, including all of the following kinds: provisional, utility, divisional, continuation, continuation-in-part, and substitution applications; and utility, re-issue, re-examination, renewal and extended patents, and patents of addition, and any Supplementary Protection Certificates, restoration of patent terms and other similar rights.

1.30 "**Phase I Clinical Trial**" means, with respect to a Product, a clinical trial on sufficient numbers of human patients or subjects for the primary purposes of evaluating safety, metabolism and pharmacokinetics, as described in 21 C.F.R. §312.21(a), or similar clinical study in a country other than the United States.

1.31 "**Phase III Clinical Trial**" means, with respect to a Product, a clinical trial on sufficient numbers of human patients that is designed to establish that such Product is safe and

efficacious for its intended use, and to define warnings, precautions and adverse reactions that are associated with such Product in the dosage range to be prescribed, and more directly (than a phase II clinical trial) supporting Regulatory Approval or label expansion of such Product, as described as a phase III clinical trial in 21 C.F.R. §312.21(c), or similar clinical study in a country other than the United States, or other pivotal trial intended to serve to gather the pivotal data to support Regulatory Approval of the Product.

1.32 "**Platform/Background Patents**" means all Patents [**] the [**] that [**] not [**] the [**] or [**] on the basis of the [**] in which [**] under the [**].

1.33 "**Platform/Core Technology**" means [**] and [**] that [**] antibody [**] and [**] in the [**] and [**] of [**] of the [**].

1.34 "**Platform/Core Technology Improvement**" means all [**] or [**] of the Research Program and [**] (and Patents claiming them) [**] or [**] including any and all [**] or [**] to [**] as [**] of the [**].

1.35 "**Product**" means any product that [**] or [**] or [**] as [**] of, [**] and [**] of [**].

1.36 "**Program Antibody**" means each antibody [**] or [**] under the Research Program. It is understood and agreed that [**] to [**] of [**], the [**] are [**] to [**] of [**] are [**] to [**].

1.37 "**Program Antibody Patents**" means Patents that [**] a Program Antibody or product containing a Program Antibody [**] are [**] and [**] is [**] of the [**] and [**] do not [**] the [**], and [**] (for example, a reformulation or a dosing regimen), and a [**] is [**] be considered a Program Antibody Patent [**] to [**] on [**] are [**] to [**] Program Antibody Patent).

1.38 "**Program-Benefited Antibody**" has the meaning given in Section 9.4.

1.39 "**Program Inventions**" means any patentable invention that is conceived and/or first reduced to practice in the course of or as a result of the activities conducted under this Agreement.

1.40 "**Program Know-How**" means all Know-How made, developed, invented or discovered by employees, contractors or agents of either Party or of both Parties pursuant to this Agreement, excluding Program Inventions claimed in any Program Patent that has published or issued.

1.41 "**Program Patent**" means any Patent claiming a Program Invention.

1.42 "**Regulatory Approval**" means with respect to a particular country or region, all approvals, licenses, registrations or authorizations by any Regulatory Authority necessary in order to legally sell a Product in such country or region for the purpose for which it is labeled.

1.43 "**Regulatory Authority**" means the FDA or any counterpart of the FDA outside the United States.

1.44 "**Research Plan**" means the plan set forth in Exhibit A.

1.45 "**Research Program**" means the program of research conducted under this Agreement in accordance with the Research Plan.

1.46 "**Research Term**" means the period beginning on the Effective Date and ending upon completion of the Research Plan.

1.47 "**Research Committee**" has the meaning given in Section 2.2.

1.48 "**Specific Antibody Information**" has the meaning given in Section 6.1.

1.49 "**Target**" means the disease-related biological target of interest to Merrimack that is specified in Exhibit A.

1.50 "**Therapeutic Area**" means a [**] and [**].

1.51 "**Therapeutic Product**" means a Product that is a pharmaceutical (or biologic drug) composition and is to be used for the treatment or prevention of any human disease or condition.

1.52 "**Third Party**" means an entity other than a Party or the Affiliate of a Party.

1.53 "**Valid Claim**" means a claim of a Patent within the Licensed Antibody Program Patents, which claim is issued and unexpired and has not been found to be unpatentable, invalid or unenforceable by a court or other authority having jurisdiction, from which decision no appeal is taken, will be taken or can be taken; or (ii) is pending and has not been finally abandoned or finally rejected and has been pending for no more than [**] years.

1.54 References in the body of this Agreement to "Sections" refer to the sections of this Agreement. The terms "include," "includes," "including" and derivative forms of them shall be deemed followed by the phrase "without limitation" regardless of whether such phrase appears there (and with no implication being drawn from its inconsistent inclusion or non-inclusion).

1.55 To avoid doubt, the term "antibody" as used everywhere else in this Agreement includes full-length antibodies, fragments thereof, and chemically modified versions thereof (including pegylated versions and regardless of whether containing amino acid substitutions), all of the foregoing whether naturally occurring, artificially produced, raised in an artificial system, or created through modification of an antibody produced in any of the foregoing ways or otherwise.

ARTICLE 2

PROGRAM.

2.1 General. Each Party shall use its reasonable efforts to carry out the Research Program activities assigned to such Party in the portion of the Research Plan that relates to "Part 1," on the applicable timeline set forth in the Research Plan. Adimab's performance obligations under the Research Program shall be contingent upon Merrimack providing the Merrimack Materials set forth in the Research Plan and the project funding set forth in Section 4.2, and shall expire at the end of the Research Term. Merrimack's performance obligations under the Research Program shall be contingent upon Adimab providing the Adimab Materials set forth in the Research Plan, and shall expire at the end of the Research Term.

The Research Plan also includes certain activities labeled "Part 2," relating generally to [**]. Part 2 is optional for both Parties, and is outlined in the Research Plan only to facilitate the Parties mutual understanding of what further work they could consider doing together. Adimab is under no obligation to perform the work in Part 2, and Merrimack is under no obligation to fund such work, in each case, unless the Parties otherwise mutually agree in writing in a formal amendment to this Agreement. If after Part 1, Merrimack believes it would like to proceed to Part 2, it shall notify Adimab, and the Parties shall discuss in good faith fees for Part 2, and if they reach agreement will execute a written amendment to this Agreement to reflect their agreement.

2.2 Scientific Research Committee. Promptly after the Effective Date, the Parties shall form a steering committee consisting of [**] representatives from each Party (the "**Research Committee**"). The Research Committee shall meet from time to time promptly after the date of a written request by either Party. It shall operate by consensus. Adimab's initial members of the Research Committee shall be [**]. Merrimack's initial such members shall be [**] Program. Either Party may change its Research Committee members upon written notice to the other Party. The Research Committee may meet in person or by teleconference or videoconference. Each Party shall designate one of its Research Committee members as co-chair. The co-chairs shall be responsible to circulate, finalize and agree on minutes of each meeting within thirty (30) days after the meeting date. The Research Committee's role is to facilitate communication regarding progress in relation to the Program Antibodies and collaboration generally. The Research Committee shall [**], other than the following: The co-chairs of the Research Committee (one from each Party) may by mutual written agreement [**] in a manner that does not materially increase either Party's performance obligations under this Agreement ("**[**]**"). Other than the [**], the Research Committee shall have [**].

2.3 Reports.

(a) By Adimab. Within [**] days after delivering the last installment of Program Antibodies to Merrimack under the Research Program, Adimab shall provide written reports to Merrimack of the Program Antibodies Adimab has identified and any information with respect to them the Research Plan provides for Adimab to disclose. Adimab shall not be required to disclose any [**] to Merrimack.

(b) By Merrimack. Within [**] days after achieving milestones [**] in Section 4.2(b), and then every [**] months throughout the term of the Option and for so long as Merrimack or its Affiliates, licensees or sublicensees generate Program-Benefited Antibodies, Merrimack shall provide written reports to Adimab. Merrimack's reports shall provide any data

and other Know-How Merrimack is required to provide under the Research Plan and shall disclose all Program-Benefited Antibodies since the date of the last report.

2.4 Use of Adimab Materials. Merrimack shall not use Adimab Materials in any way outside of the Research Program or other than pursuant to the license granted under this Agreement while such license is in effect. Among other things, this means that, except under the Research Program or pursuant to such license, Merrimack shall not: (i) provide Adimab Materials to any Third Party, (ii) sequence or modify the Adimab Materials, or (iii) use sequence information regarding Program Antibodies that constitutes Confidential Information of Adimab and remains subject to the confidentiality restrictions in Article 6 or quantities of Program Antibodies delivered to Merrimack by Adimab or Adimab Materials, in the case of each of the foregoing clauses (i), (ii) and (iii) for any purpose other than to pursue the research, development, manufacture and commercialization of Products and potential Products in accordance with this Agreement.

Adimab retains title to the Adimab Materials, including all quantities of Program Antibodies that it provides under the Research Program. Such quantities of Adimab Materials are for use solely in assessing whether to exercise the Option or for research and development activities subsequent to Merrimack's exercise of the Option within the scope of the resulting license under Section 3.3(b). Such quantities shall not be [**]. Merrimack shall return to Adimab or destroy such quantities on expiration of the Evaluation Term, if Merrimack does not exercise the Option and Adimab requests such return or destruction in writing.

2.5 Use of Merrimack Materials. Adimab shall use the Merrimack Materials solely to perform the Research Program. Adimab shall not transfer the Merrimack Materials outside of Adimab. Within [**] days after the Research Term ends, Adimab will return to Merrimack or, if requested, destroy any remaining Merrimack Materials.

ARTICLE 3

LICENSES; OPTION; DEVELOPMENT & COMMERCIALIZATION

3.1 Mutual Research Program Licenses.

(a) To Merrimack. Adimab hereby grants Merrimack a non-exclusive license under the Adimab Program Antibody Patents and Adimab Program Antibody Know-How, for Merrimack to perform Merrimack's responsibilities as provided for in the Research Plan as part of the Research Program during the Research Term and to perform non-clinical research during Evaluation Term in order to evaluate whether to exercise the Option.

(b) To Adimab. Similarly, Merrimack and its Affiliates hereby grant to Adimab a non-exclusive license under all Patents and Know-How Controlled by Merrimack (or its Affiliate) and relating in any way to the Target or any Merrimack Materials, for Adimab to perform Adimab's responsibilities as provided for in the Research Plan as part of the Research Program during the Research Term and Evaluation Term.

3.2 Merrimack Option. Adimab hereby grants Merrimack the exclusive option to obtain the assignment and license of Section 3.3, exercisable by written notice to Adimab on or

before expiration of the Evaluation Term and by payment of the option exercise fee of Section 4.3 by the time set forth in that Section. Merrimack shall, in its written notice to exercise the Option, specify up to [**] Program Antibodies as, and together with any Program-Benefited Antibodies, the up to [**] Program Antibodies specified by Merrimack in such notice shall be, the "**Licensed Antibodies**."

3.3 Development/Commercialization Assignment and License. Adimab hereby, effective on Merrimack's exercise of the Option:

(a) assigns to Merrimack, subject to the terms and conditions of this Agreement, all right, title and interest in and to the Licensed Antibody Program Patents; and

(b) grants to Merrimack, subject to the terms and conditions of this Agreement, a worldwide, sublicenseable, non-exclusive license under the Platform/Background Patents, Program Patents (other than Licensed Antibody Program Patents) and Adimab Program Antibody Know-How, in the Field, to research, develop, make, have made, use, sell, offer to sell, import and export Licensed Antibodies and Products during the term of this Agreement; provided that, on a Product-by-Product and country-by-country basis, such license shall convert to a fully paid-up, non-royalty-bearing, perpetual, non-exclusive license upon the expiration of the applicable Royalty Term (but not upon earlier termination of this Agreement).

3.4 Diligent Development and Commercialization. "**Commercially Reasonable Efforts**" means the level of efforts required to carry out a task in a diligent and sustained manner without undue interruption, pause or delay; which level is at least commensurate with the level of efforts that a biopharmaceutical company of similar size to, and with similar resources as, Merrimack would devote to a product of similar potential and having similar commercial and scientific advantages and disadvantages resulting from the company's own research efforts, taking into account safety and efficacy; the competitiveness of alternative products; proprietary position of the product; pricing and reimbursement; and all other relevant scientific, regulatory and commercial factors. Merrimack, together with its Affiliates, licensees and sublicensees, shall, if Merrimack exercises the Option, devote Commercially Reasonable Efforts to [**] develop, seek [**] for, and [**] commercialize at least [**] in each of the Major Markets. As to the EU, Merrimack shall be deemed to have satisfied such Commercially Reasonable Efforts obligation if [**].

[**] to terminate Merrimack's licenses hereunder with respect to [**], subject to the notice and cure provisions in Section 9.2. In the event that Merrimack's licenses hereunder are terminated [**] to [**] with [**] are [**] and [**] and [**] or [**].

[**], Merrimack will provide Adimab with a written report of Product progress in development and commercialization, Merrimack's and its Affiliates' activities in that regard. If requested by Adimab, then, within [**] days of receipt, Merrimack shall meet with Adimab to discuss such report at a mutually convenient time and location. Merrimack shall make the following personnel available for such meetings: the [**] (or equivalent) for Product Development, and a person at [**] or above with responsibility for alliance management (or equivalent). Each Party shall be responsible for its own out-of-pocket costs of any such meeting requested by Adimab.

3.5 Section 365(n) of the Bankruptcy Code. The licenses granted under this Article 3 shall be treated as licenses of rights to "intellectual property" (as defined in Section 101(56) of Title 11 of the United States Code, as amended (the "**Bankruptcy Code**")) for purposes of Section 365(n) of the Bankruptcy Code. The Parties agree that Merrimack may elect to retain and may fully exercise all of its rights and elections under the Bankruptcy Code. Under no circumstances, however, shall this be interpreted to mean that Merrimack (or any Affiliate, licensee or sublicensee of Merrimack) has any right to receive disclosure or documentation of the Platform/Core Technology (including its operation), whether or not alleged to be an "update" or an embodiment of intellectual property licensed under this Agreement.

ARTICLE 4

FINANCIAL TERMS.

4.1 Technology Access Fee. Merrimack shall pay Adimab a technology access fee equal to [**] Dollars ($[**]) within [**] business days after the Effective Date.

4.2 Project Funding.

(a) Lead Identification Research Fee. Merrimack shall pay to Adimab [**] Dollars ($[**]) within [**] days after Adimab's initiation of activities under the Work Plan. Adimab shall notify Merrimack promptly in writing when such initiation has occurred.

(b) Lead Identification Research Success Fees/Milestone Payments. Merrimack shall report in writing achievement of each event (except for, as to achievement of the first such event (i.e., the event described in row 1 of the table below) by Adimab, Adimab shall report such achievement to Merrimack in writing) within [**] days after such achievement, and simultaneously Merrimack shall pay the corresponding research milestone payment to Adimab, as to the first achievement of each of the corresponding milestone events in the following table. If Merrimack requires an invoice for such purposes, it may request one in advance in order to be able to make timely payment.

Research Milestone Event	Research Milestone Payment
1. [**]	1. [**] Dollars ($[**])
2. [**]	2. [**] Dollars ($[**])
3. [**]	3. [**] Dollars ($[**])

Each of the foregoing research milestone payments is payable a maximum of one (1) time only, even if achieved more than once.

4.3 Option Exercise Fee. Merrimack shall, within [**] days after the date of Merrimack's notice of exercise of the Option under Section 3.2, pay to Adimab an option exercise fee of One Million Dollars ($1,000,000), together with any and all research milestone payments not previously paid under Section 4.2 (whether or not the events set forth in Section 4.2 have actually been achieved). If Merrimack requires an invoice for this purpose, it may request one from Adimab in advance in order to be able to make timely payment.

4.4 Milestone Payments.

(a) Therapeutic Development Milestones. For each Therapeutic Product in each of its first 4 Therapeutic Areas, Merrimack shall report in writing to Adimab the achievement of each event and pay the corresponding development milestone payment (each a "**Therapeutic Development Milestone**") to Adimab, each within [**] days after achievement of the corresponding Therapeutic Development Milestone event in the following table (whether achieved by or on behalf of Merrimack or its Affiliate or any other entity acting on behalf of any of them or having received a license, sublicense or other rights from any of the foregoing). If Merrimack requires an invoice for this purpose, then Merrimack may request one in advance in order to be able to make timely payment.

Therapeutic Development Milestone Event	Therapeutic Development Milestone Payment
1. [**]	1. [**] Dollars ($[**]), subject to reduction to [**] Dollars ($[**] as provided In Section 4.4(a)(i).
2. [**]	2. [**] Dollars ($[**])
3. [**]	3. [**] Dollars ($[**])
4. [**]	4. [**] Dollars ($[**])
5. [**]	5. [**] Dollars ($[**])
Maximum per Therapeutic Product in each of the first 4 Therapeutic Areas	[**] Dollars ($[**])

(i) The payment for Therapeutic Development Milestone 1 shall be reduced to [**] Dollars ($[**] months [**].

(ii) All Therapeutic Development Milestones are payable on a Therapeutic Product-by-Therapeutic Product and Therapeutic Area-by-Therapeutic Area basis for each of the first 4 Therapeutic Areas per Therapeutic Product. No Therapeutic Development Milestones are due for Therapeutic Areas beyond the fourth Therapeutic Area (i.e., a "[**]" or "[**]" Therapeutic Area, and so on). Notwithstanding the foregoing, if a Therapeutic

Development Milestone is paid on a Therapeutic Product with respect to a Therapeutic Area, and subsequently further development and/or commercialization of such Therapeutic Product for such Therapeutic Area is abandoned, and following such abandonment Merrimack achieves the same Therapeutic Development Milestone with a different Therapeutic Product for the same Therapeutic Area, such Therapeutic Development Milestone shall not be due with respect to such subsequent milestone achievement.

(iii) For this purpose, all Therapeutic Products [**] shall be considered a [**] Therapeutic Product. [**]. A [**] Therapeutic Product containing [**] Licensed Antibody shall be considered a [**] Therapeutic Product from [**] that Licensed Antibody and [**] antibodies (whether Licensed Antibodies or otherwise).

(iv) On a Therapeutic Product-by-Therapeutic Product basis: if Merrimack achieves a Therapeutic Development Milestone event with respect to a "first," "second," "third," or "fourth" Therapeutic Area without having achieved a prior Therapeutic Development Milestone event with respect to such "first," "second," "third," or "fourth"[**]Therapeutic Area as applicable, then Merrimack will make the prior Therapeutic Development Milestone payment together with the payment of the Therapeutic Development Milestone payment for the achieved subsequent milestone event. For all purposes under this Section, whether a Therapeutic Area is "first," "second," "third," or "fourth" for any given milestone event will be determined not based on which Therapeutic Area started first in development, but rather on which Therapeutic Area first achieves the milestone event. For a non-limiting example, [**].

(b) Diagnostic Development Milestones. For each Diagnostic Product, Merrimack shall report in writing to Adimab the achievement of each event and pay the corresponding development milestone payment to Adimab (each, a "**Diagnostic Development Milestone**"), each within [**] days after the achievement of the corresponding Diagnostic Development Milestone event in the following table (whether achieved by or on

behalf of Merrimack or its Affiliate or any other entity acting on behalf of any of them or having received a license, sublicense or other rights from any of the foregoing). If Merrimack requires an invoice for such purposes, it may request one in advance in order to be able to make timely payment.

Diagnostic Development Milestone Event	Diagnostic Development Milestone Payment
1. [**]	1. [**] Dollars ($[**])
2. [**]	2. [**] Dollars ($[**])

(i) All Diagnostic Development Milestones are payable on a Diagnostic Product-by-Diagnostic Product basis [**] per Diagnostic Product.

(ii) For this purpose, even if a Product contains [**], it shall be considered a [**] for purposes of this Section 4.4. The principles of Section 4.4(a)(iii) shall apply [**] as they do to [**].

4.5 Royalty Payments. Merrimack shall pay Adimab royalties on Net Sales of Therapeutic Products at the rate of [**] percent ([**]%) and royalties on Net Sales of Diagnostic Products at the rate of [**] percent ([**]%), in each case with respect to all Net Sales achieved during the applicable Royalty Term (determined on a country-by-country and Product-by-Product basis in accordance with Section 4.6).

4.6 Royalty Term. "**Royalty Term**" means, on a Product-by-Product and country-by-country basis, the time from the First Commercial Sale of such Product in such country until the later to occur of (a) the expiration of the last Valid Claim Covering the Product in the country in which such Product is sold, or (b) [**] the [**], on [**] of [**] with [**] to [**] of the [**] in a [**] of the [**] is [**] in the [**].

4.7 Combination Products. If Merrimack, its Affiliate or the Product licensee or sublicensee of any of them sells any Product as a combination product containing one or more active ingredient(s) that are not Licensed Antibody(ies) (whether combined in a single formulation or sold as a bundle of separate formulations) ("**Combination Product**"), Net Sales for such Combination Product shall be calculated by multiplying actual Net Sales of such Combination Product by the fraction A/(A+B) where A is the invoice price of the Licensed Antibody(ies) in such Combination Product if sold separately, and B is the total invoice price of any other active ingredient or ingredients in the combination, if sold separately. If, on a country-by-country basis, A or B is not available, then (a) Net Sales of such Combination Product shall be calculated by multiplying actual Net Sales of such Combination Product by the fraction of C/C+D where C is the fair market value of the Licensed Antibody(ies) and D is the fair market value of all other drug product(s) included in the Combination Product and (b) Merrimack shall notify Adimab of its good faith determination of such fair market values and make any applicable royalty payments based on such determination; provided that, if Adimab disagrees with such good faith determination, Adimab shall notify Merrimack of such disagreement and the Parties shall seek to resolve such disagreement in accordance with Section 10.2; provided further that, if the Parties are unable to resolve such disagreement through Senior Executives Discussions, either Party may request that the Parties resolve such dispute by appointing a mutually agreeable Third Party with expertise in commercial pharmaceutical matters to resolve the dispute, in which case the Parties shall appoint such Third Party within [**] days after such request and instruct such Third Party to resolve the dispute as promptly as possible, and any such resolution shall be binding on both Parties. [**]. Both Parties shall use all reasonable efforts to cause the process to be completed within [**] days after it begins. The Third Party dispute resolver shall be, and is hereby, instructed to fashion and cause the Parties to follow a procedure that limits discovery, allows written submissions of no more than [**] pages from each Party, and allows a presentation by each Party of their position not to exceed [**] hours (though the Parties' may respond within time and page limits set by the Third Party to any questions the Third Party may have).

4.8 Quarterly Payment Timings. All royalties due under Section 4.5 shall be paid quarterly, on a country-by-country basis, within [**] days after the end of the relevant calendar quarter for which royalties are due.

4.9 Royalty Payment Reports. With respect to each calendar quarter, at the time(s) when the payments of Section 4.8 are due, Merrimack shall provide to Adimab a written report stating the number and description of all Products sold during the relevant calendar quarter; the gross sales associated with such sales; and the calculation of Net Sales on such sales. The report shall provide all such information on a country-by-country and Product-by-Product basis.

4.10 Payment Method. All payments due under this Agreement to Adimab shall be made by bank wire transfer in immediately available funds to an account designated by Adimab. All payments hereunder shall be made in the legal currency of the United States of America, and all references to "**$**" or "**dollars**" shall refer to United States dollars (i.e., the legal currency of the United States).

4.11 Taxes. Merrimack shall be responsible for and may withhold from payments made to Adimab under this Agreement any taxes required to be withheld by Merrimack under applicable law. Accordingly, if any such taxes are levied on such payments due hereunder ("**Withholding Taxes**"), Merrimack shall (i) deduct the Withholding Taxes from the payment amount, (ii) pay all applicable Withholding Taxes to the proper taxing authority, and (iii) send evidence of the obligation and payment of such tax to Adimab concurrently with the payment by Merrimack to Adimab of the payment hereunder subject to such Withholding Taxes.

4.12 Records; Inspection.

(a) Merrimack shall keep, for a period of [**] years following the end of the calendar year to which such records relate, and ensure that its Affiliates keep, complete and accurate records of its sales of Product including all records that may be necessary for the purposes of calculating all payments due under this Agreement. Merrimack shall make such records available for inspection by an accounting firm selected by Adimab at Merrimack's premises in the United States on reasonable notice during regular business hours.

(b) At Adimab's expense no more than [**] per calendar year, Adimab has the right to retain an independent certified public accountant from a nationally recognized (in the U.S.) accounting firm (that is not an Affiliate of Adimab) to perform on behalf of Adimab an audit, conducted

in accordance with GAAP, of such books and records of Merrimack and its Affiliates as are necessary (in the reasonable opinion of the auditor) to verify Net Sales for the period or periods requested by Adimab and the correctness of any report or payments made under this Agreement, and solely for such purpose. Merrimack may require that such independent accounting firm enter into a confidentiality agreement reasonably satisfactory to Merrimack as a condition to obtaining access to such records.

(c) If the audit reveals an underpayment, Merrimack shall promptly pay to Adimab the amount of such undisputed underpayment plus interest in accordance with Section 4.16. If the audit reveals that the undisputed monies owed by Merrimack to Adimab has been

understated by more than five percent (5%) for any calendar year, Merrimack shall, in addition, pay the reasonable costs of such audit.

4.13 Licensee/Sublicensee Reports, Records and Audits. If Merrimack grants any Product licenses or sublicenses, the agreements for such licenses and sublicenses shall include an obligation for the sublicensee to (i) maintain, for a period of [**] years following the end of the calendar year to which such records relate, records adequate to document and verify the proper payments to be paid to Adimab hereunder; (ii) provide reports with sufficient information to allow such verification; and (iii) allow Adimab (or Merrimack if requested by Adimab) to verify the payments due (such audit right is not required to be any stronger than that of Section 4.12). Merrimack may require that any such audit of a licensee or sublicensee be conducted as part of an audit by Merrimack of such licensee or sublicensee, if Merrimack is conducting an audit of the same licensee or sublicensee for the same reporting period(s).

4.14 Foreign Exchange. If any currency conversion shall be required in connection with the calculation of amounts payable hereunder, such conversion shall be made using the average of the exchange rates for the purchase and sale of U.S. dollars, as reported by Bank of America in New York, New York (or its successor entity) on the last business day of the calendar quarter to which such payment pertains. With any payment in relation to which a currency conversion is performed to calculate the amount of payment due, Merrimack shall provide to Adimab a true, accurate and complete copy of the exchange rates used in the calculation.

4.15 Non-refundable, non-creditable payments. Each payment that is required under this Agreement is non-refundable and non-creditable.

4.16 Late Payments. Any amount owed by Merrimack to Adimab under this Agreement that is not paid within the applicable time period set forth herein will accrue interest at the rate of [**] percent ([**]%) above the then-applicable short-term three-month London Interbank Offered Rate (LIBOR) as quoted in the Wall Street Journal (or if it no longer exists, a similarly authoritative source) calculated on a daily basis, or, if lower, the highest rate permitted under applicable law.

Third Party Patents. [**] or [**] are [**] in [**] a [**] or the [**] to [**] and [**] of the [**] to [**] to [**] and [**] to [**] to the [**]:

[**]

on a[**] of [**] and [**] the [**] of the [**] to [**] to [**] are [**] to [**] are [**] be [**] and [**]

and [**] as to [**] to [**] of the [**] to the [**] that [**] of the [**], and [**]may [**] of the [**] are [**] of [**] with [**] and [**] of [**] and [**].

ARTICLE 5

INTELLECTUAL PROPERTY.

5.1 Program Patent and Program Know-How Ownership.

(a) Adimab shall solely own, regardless of inventorship, all Program Patents directed to Platform/Core Technology Improvements.

(b) Adimab shall solely own, regardless of inventorship, all Program Antibody Patents (including Adimab Program Antibody Patents and Merrimack Program Antibody Patents), until and unless Merrimack exercises the Option, at which time the assignment to Merrimack of the Licensed Antibody Program Patents as set forth in Section 3.3(a) shall be effective and [**].

(c) All Program Patents other than those directed to Platform/Core Technology Inventions and Program Antibody Patents shall be owned based on inventorship determined in accordance with United States patent law.

(d) Program Know-How that constitutes Platform/Core Technology Improvements shall be owned by Adimab regardless of by which Party developed the Know-How.

(e) All other Program Know-How shall be owned by the Party that created it.

5.2 Disclosure. During the term of the Agreement, each Party shall promptly disclose to the other Party the making, conception or reduction to practice of any Program Inventions that would be Covered by Program Antibody Patents, and, additionally in Merrimack's case, of those that are Platform/Core Technology Improvements. Such disclosure shall occur as soon as possible, but in any case within [**] days after the Party determines such Program Inventions have been invented. (To avoid doubt, this Section shall not be read to require Adimab to disclose Program Inventions constituting Platform/Core Technology Improvements to Merrimack.)

5.3 Patent Prosecution and Maintenance.

(a) Core Technology. To avoid doubt, Adimab shall have, and retains, the sole right to file, prosecute, maintain, defend and enforce all Program Patents directed to Platform/Core Technology Improvements and all Platform/Background Patents, all at its own expense, and without any right

of Merrimack to disclosure, input or commentary.

(b) Program Antibody Patents, Other than Licensed Antibody Program Patents After Option Exercise. Except as otherwise provided in this Section 5.3(b) as regards Program Antibody Patents during the Research Term and the Evaluation Term and in Sections 5.3(c), 5.4 and 5.7 as regards Licensed Antibody Program Patents after Option exercise, Adimab shall have the sole right to file, prosecute, maintain, defend and enforce all Program Antibody Patents, all at its own expense.

For the initial provisional patent filing(s) of each Program Antibody Patent, during the Research Term and the Evaluation Term, the Parties shall cooperate in preparing these provisional filings (including providing data and information and the like; but Adimab is not required to disclose the details of the Platform/Core Technology). [**] and [**] and [**], at [**] or [**] to [**] in [**]. Both Parties will have the opportunity to review and comment upon such provisional patent applications prior to their filing.

[**] be [**] to [**] of the [**] of [**] to [**] the [**] on [**] to [**] with [**] to [**].

(c) Licensed Antibody Program Patents After Option Exercise. If Merrimack exercises the Option then:

(i) [**].

(ii) Merrimack shall thereafter have the right and shall use Commercially Reasonable Efforts to perform the preparation, prosecution and maintenance of the Licensed Antibody Program Patents with the goal of obtaining issued valid Coverage for the Licensed Antibodies through the Licensed Antibody Program Patents. This shall be at Merrimack's expense (including the costs of all foreign and PCT filings). Adimab will have the opportunity to review and comment upon drafts of any and all patent applications and substantive correspondence related to preparing, prosecuting and maintaining such Licensed Antibody Program Patents. Merrimack shall [**] to the [**] of [**] on the [**] has [**] and [**] has [**] and [**] the [**] or [**] has [**] or [**], to [**] of a [**] with the [**] be [**].

(iii) Merrimack shall seek and maintain all Licensed Antibody Program Patents in the United States, the Major EU Countries [**].

(iv) Notwithstanding anything express or implied in this Agreement, Merrimack's rights and obligations to file, prosecute and maintain Program Antibody Patents are limited to the Licensed Antibody Program Patents. Merrimack shall not be entitled to (and shall not) prosecute, file, maintain or enforce Program Antibody Patents that disclose the sequences of Program Antibodies disclosed by Adimab to Merrimack pursuant to the Research Program other than Licensed Antibody Program Patents that disclose the sequences of Licensed Antibodies. Merrimack shall not be entitled to, and shall not, in the Licensed Antibody Program Patents, disclose or claim the sequence of any Program Antibody that is not a Licensed Antibody (or the corresponding nucleic acid sequence). [**] to [**] on [**] the [**] on [**] that [**] in [**] of [**] is [**], and [**], is [**].

(c) Serendipitous Program Inventions.

(i) Adimab Program Inventions. As between the Parties, Adimab shall have the sole right, at its sole expense and in its sole discretion, to prepare, file, prosecute, enforce and maintain (including conducting or participating in interferences and oppositions) all Patents directed to Adimab Program Inventions but not falling within the Program Antibody Patents or the Platform/Core Technology Improvements (which, to avoid doubt, are both addressed above).

(ii) Merrimack Program Inventions. Merrimack shall have the sole right, at its sole expense and in its sole discretion, to prepare, file, prosecute, enforce and maintain (including conducting or participating in interferences and oppositions) all Program Patents on Merrimack Program Inventions, other than Program Antibody Patents and Platform/Core Technology Improvements (which, to avoid doubt, are both addressed above).

(iii) Serendipitous Joint Program Inventions. The Parties shall mutually agree which of them shall be responsible for either using its in-house patent attorneys or through mutually agreed upon outside counsel to prepare, file, prosecute, enforce and maintain

Program Patents on Joint Serendipitous Inventions, and how the costs of such activities will be shared.

5.4 Patent Term Restoration. The Parties shall cooperate with each other, including by providing necessary information and assistance as the other Party may reasonably request, to obtain patent term restoration or supplemental protection certificates or their equivalents in any country where applicable to Licensed Antibody Program Patents. After Option exercise, if elections with respect to obtaining such patent term restoration are to be made with respect to Licensed Antibody Program Patents and the Parties do not agree, [**] where it would have been possible to do so, Merrimack shall pay to Adimab royalties on Net Sales in the applicable country for the Royalty Term that would have resulted if Merrimack had elected to extend the Licensed Antibody Program Patent.

5.5 Cooperation of the Parties. At the reasonable request of the responsible (as provided for in this Article 5) Party, the other Party agrees to cooperate fully in the preparation, filing, prosecution, enforcement and maintenance of any Program Patents under this Agreement. Such cooperation includes executing all papers and instruments (or causing its personnel to do so) reasonably useful to enable the other Party to apply for and to prosecute patent applications in any country; and promptly informing the other Party of any matters coming to such Party's attention that may affect the preparation, filing, prosecution, enforcement or maintenance of any such Patents.

5.6 Implementation.

(a) Assignments. Each Party hereby assigns to the other Party Program Inventions, associated Patents, and Program Know-How as necessary to achieve ownership as provided in Sections 5.1 and 3.3(a). Each assigning Party shall execute and deliver all documents and instruments

reasonably requested by the other Party to evidence or record such assignment or to file for, perfect or enforce the assigned rights. Each assigning Party hereby appoints the other Party as attorney-in-fact solely to execute and deliver the foregoing documents and instruments if such other Party after making reasonable inquiry does not obtain them from the assigning Party. Each Party (and its Affiliates) shall perform its activities under this Agreement through personnel who have made a similar assignment and appointment to and of such Party or its Affiliate. Each assigning Party shall make its relevant personnel (and their assignments and signatures on such documents and instruments) reasonably available to the other Party for assistance in accordance with this Article at no charge.

(b) Joint Ownership Implementation. As regards Joint Serendipitous Inventions and the Program Patents to the extent claiming them, either Party is entitled to practice and license them without consent of and without a duty of accounting to the other Party. Each Party hereby grants all permissions, consents and waivers with respect to, and all licenses under, the Joint Serendipitous Inventions and the Program Patents claiming them as necessary to achieve throughout the world the nature of joint ownership rights of the foregoing as described in Section 5.1 and the foregoing sentence. To avoid doubt, this Section does not imply any permission, consent or waiver with respect to, or license under, any Patent or item of Know-How other than the Joint Serendipitous Inventions and the Program Patents to the extent claiming them.

5.7 Infringement of Patents by Third Parties.

(a) Notification. Each Party shall promptly notify the other Party in writing if the notifying Party reasonably believes that any Licensed Antibody Program Patent is being or has been infringed or misappropriated by a Third Party (such infringement, together with any that may be imminently threatened to occur by any potential generic version of a Product arising under the implementing procedures of 35 U.S.C. 271(e)(2) or ex-U.S. equivalent, "**Infringement**", and "**Infringe**" shall be interpreted accordingly).

(b) License-Competitive Infringement of Licensed Antibody Program Patents.

(i) First Right. Merrimack shall have the first right, but not the obligation, to enforce the Licensed Antibody Program Patents against Infringement through [**] ("**License-Competitive Infringement**"). Merrimack shall reasonably consider Adimab's comments on any such enforcement activities. Except as provided in subsection (d) or in Section 5.8, Merrimack shall bear all costs and expenses for enforcement under this Section 5.7(b)(i) (including the costs of Adimab's cooperation as required under subsection (e)).

(ii) Back-up Right for License-Competitive Infringement of Licensed Patents. If Merrimack does not bring action to prevent or abate License-Competitive Infringement within [**] after notification thereof to or by Merrimack pursuant to Section 5.7(a), then Adimab shall have the right, but not the obligation, to bring, at its own expense, an appropriate action against any person or entity engaged in such License-Competitive Infringement directly or contributorily. [**] and [**] to [**], as [**] and [**].

(iii) Proceeds. Recoveries on suits under this Section 5.7(b) will be handled as provided in Section 5.8.

(c) Non-License-Competitive Infringement. With respect to any Infringement of Program Antibody Patents anywhere in the world other than License-Competitive Infringement, Adimab shall have the exclusive right (but not the obligation) to prevent or abate such Infringement, and as between the Parties shall bear all related expenses and retain all related recoveries. In that case, Adimab shall notify Merrimack of such Infringement and keep Merrimack reasonably informed with respect to the disposition of any action taken in connection with them.

(d) Participation of the other Party with Respect to Infringement Suits. If a Party brings an action against infringement under this Section 5.7, the other Party shall be entitled to separate representation in such matter by counsel of its own choice and at its own expense, and such Party shall reasonably cooperate with the Party bringing the action, including by joining such suit as a party plaintiff if necessary to obtain standing for such action (all at the expense on a pass-through basis of the enforcing Party).

(e) Settlement. Adimab shall not settle a claim brought under this Section 5.7 involving Program Antibody Patents in a manner that would limit or restrict the ability of Merrimack to sell Products for use in the Field, or impair the exclusivity of Merrimack's license rights under this Agreement, or narrow the Licensed Antibody Program Patents or shorten their

life, in each case without the prior written consent of Merrimack (which consent shall not be unreasonably withheld, conditioned or delayed). Merrimack shall not settle a suit under this Section 5.7 in a way that would narrow the Licensed Antibody Program Patents or shorten their life, in each case without the prior written consent of Adimab (which consent shall not be unreasonably withheld, conditioned or delayed).

5.8 Allocation of Proceeds. If monetary damages are recovered from any Third Party in an action brought by a Party under Section 5.7(b), such recovery shall be allocated first to the reimbursement of any costs and expenses incurred by the Party controlling such litigation (including, for this purpose, a reasonable allocation of expenses of internal counsel or other personnel acting in such capacity (i.e., coordination of litigation matters and the like)), then to the costs of the non-controlling Party incurred by the non-controlling Party to cooperate as requested by the controlling Party (to the extent not previously reimbursed and to avoid doubt including costs of the non-controlling Party's independent counsel), and any remaining amounts shall be split as follows: [**].

5.9 Patent Challenges. [**] the [**] or [**] or [**] to [**] of [**] to [**] the [**] and [**] to [**] the [**] and [**] the [**] and [**] the [**] the [**] and/or [**] in [**] of the [**] or [**] and [**] or [**] are [**] the [**] of the [**] in [**].

ARTICLE 6

CONFIDENTIALITY; PUBLICITY.

6.1 General. Any and all information disclosed or submitted in writing or in other tangible form — or if disclosed orally, that is indicated to be confidential at the time of disclosure and confirmed in writing as such within [**] days after initial disclosure — to one Party by the other Party under this Agreement or that certain Confidentiality Agreement between them dated June 12, 2009 is the "**Confidential Information**" of the disclosing Party. In addition, information embodied in Adimab Materials is Adimab's Confidential Information, and information embodied in the Merrimack Materials is Merrimack's Confidential Information. Each Party shall receive and maintain the other Party's Confidential Information in strict confidence. Neither Party shall disclose any Confidential Information of the other Party to any Third Party. Neither Party shall use the Confidential Information of the other Party for any purpose other than as reasonably required to perform its obligations or exercise its rights hereunder. Notwithstanding the foregoing, each Party may disclose the other Party's Confidential Information to the receiving Party's employees and contractors requiring access thereto for the purposes of this Agreement and, in the case of Merrimack, to Merrimack's licensees, sublicensees and other Third Parties as reasonably required for Merrimack to exercise its rights with respect to the research, development, manufacture and commercialization of Program Antibodies and Products hereunder, *provided, however*, that prior to making any such disclosures, each such Third Party shall be bound by written agreement or other legally binding obligations to maintain Confidential Information in confidence and not to use such information for any purpose other than in accordance with the terms and conditions of this Agreement, *provided further* that such agreements must include confidentiality and non-use provisions at least as stringent as those in this Agreement, and *provided further, however,* that in the case of disclosures that are reasonably required to be made to Regulatory Authorities or patent offices from which obtaining such confidentiality undertakings is not practicable, no such undertakings shall be required. [**] the [**], to the[**] is [**] in a [**] ("**Specific Antibody Information**"), as [**] for [**] and [**]. Each Party agrees to take reasonable steps to ensure that the other Party's Confidential Information shall be maintained in confidence including such steps as it takes to prevent the disclosure of its own proprietary and confidential information of like character. Each Party shall take all steps necessary to ensure that its Affiliates and employees and contractors shall comply with the terms and conditions of this Agreement. The foregoing obligations of confidentiality and non-use shall survive, and remain in effect for a period of [**] years from, the termination or expiration of this Agreement in accordance with Article 9.

6.2 Exclusions from Nondisclosure Obligation. The nondisclosure and nonuse obligations in Section 6.1 shall not apply to any Confidential Information to the extent that the receiving Party can establish by competent written proof that it:

(a) at the time of disclosure is publicly known;

(b) after disclosure, becomes publicly known by publication or otherwise, except by breach of this Agreement by such Party;

(c) was in such Party's possession in documentary form at the time of disclosure hereunder;

(d) is received by such Party from a Third Party who has the lawful right to disclose the Confidential Information and who shall not have obtained the Confidential Information either directly or indirectly from the disclosing Party; or

(e) is independently developed by such Party (i.e., without reference to Confidential Information of the disclosing Party).

6.3 Required Disclosures. If either Party is required, pursuant to a governmental law, regulation or order, to disclose any Confidential Information of the other Party, the receiving Party, if practicable (i) shall give advance written notice to the disclosing Party, (ii) shall make a reasonable effort to cooperate with the other Party's efforts to obtain a protective order requiring that the Confidential Information so disclosed be used only for the purposes for which the law or regulation required and (iii) shall disclose the Confidential Information solely to the extent required by the law or regulation; provided that, this Section 6.3 shall not permit any disclosure or use of such Confidential Information beyond the required disclosure (and shall not permit use of the disclosed information, if disclosure remains confidential from the general public, as may be the case of information disclosed pursuant to a protective order).

6.4 Terms of Agreement. The terms of this Agreement are the Confidential Information of both Parties. However, each Party shall be entitled to disclose the terms of this Agreement under legally binding obligations of confidence and limited use to: legal, financial and investment banking advisors; and potential and actual investors, lenders, acquirors and licensees or sublicensees and counsel for the foregoing. In addition, if legally required, a copy of this Agreement may be filed by either Party with the SEC (or relevant ex-U.S. counterpart). In that case, the filing Party will if requested by the other Party diligently seek confidential treatment for terms of this Agreement for which confidential treatment is reasonably available, and shall provide the non-filing Party reasonable advance notice of the terms proposed for redactions and a reasonable opportunity to request that the filing Party make additional redactions to the extent confidential treatment is reasonably available under the law. Such reasonable opportunity shall include at least [**] weeks to comment in the case of the initial public filing of this Agreement. [**].

6.5 Return of Confidential Information. Promptly after the termination or expiration of this Agreement for any reason, each Party shall return to the other Party all tangible manifestations of such other Party's Confidential Information at that time in the possession of the receiving Party.

6.6 Publicity. The Parties have agreed there will not be a press release to announce the execution of this Agreement. Other than a mutually agreed press release (should the Parties ever agree to one), and other than repeating information in a mutually agreed press release, neither Party will generate or allow any publicity regarding this Agreement or the transaction contemplated hereunder. Notwithstanding the foregoing, each Party may make such public announcements as may be required in order to comply with applicable securities laws and

regulations, but in this case shall if practicable first confer and seek approval from (i.e., attempt to reach consensus with) the other Party as to what will be said in the disclosure, allowing a reasonable time prior to the disclosure for the other Party to review and for the attempt to reach consensus as to the text of any such required disclosure in advance. In addition, it is understood and agreed between the Parties that for its marketing purposes Adimab may without disclosing that Merrimack is Adimab's counterparty under this Agreement or the Target, disclose that this Agreement has been executed, and as success events under this Agreement occur (Research Program and other milestones under this Agreement).

6.7 Certain Data.

(a) Notwithstanding this Article 6, without disclosing Merrimack's identity or the identity of the Program Antibody, other antibodies previously tested by or for Merrimack or the Target (although the class of protein of the Target may be disclosed), Adimab shall be entitled to disclose the following Program Know-How: (i) [**].

(b) In addition, Merrimack [**] to [**], and [**] to [**] or [**] as [**] by [**] to [**] and [**]. Such data [**] in [**] to [**] by [**]. Any such data that [**] for [**] as [**] will be responsible for [**] of the [**] to [**] as [**] to the [**] or the [**], but is [**] to [**] for [**] and [**]. To be clear, if there is [**] for [**] no data [**] the [**] for data [**] be disclosed pursuant to Section 6.7(a) above. Further, for the sake of clarity, this Section 6.7 does not [**] to [**] the data for [**] described in Section 6.7(a) or 6.7(b) to [**], and [**] to the extent that it is [**].

6.8 Publications. Merrimack and its Affiliates, licensees and sublicensees shall have the right to publish or present scientific or technical data, results or other information with respect to any Licensed Antibody or Product. In the event that Merrimack or any of its Affiliates, licensees or sublicensees desires to make any such publication or presentation that would disclose non-public information about a Licensed Antibody or Product, Merrimack shall notify Adimab of such planned publication or presentation at least [**] days (or at least [**] days in the case of abstracts or oral presentations) prior to submission for publication for review by Adimab. If Adimab notifies Merrimack that such publication or presentation, in Adimab's reasonable judgment, contains an invention for which Adimab desires to obtain patent protection, Merrimack shall further delay such publication or presentation for a period reasonably sufficient to permit the timely preparation and filing by Adimab of a patent application(s) on any invention disclosed in such publication or presentation (but no more than [**] days from the date of Adimab's notice thereof). To avoid doubt, this Section 6.8 shall not be read to permit the disclosure of any Confidential Information of Adimab other than Specific Antibody Information.

ARTICLE 7

REPRESENTATIONS, WARRANTIES AND COVENANTS.

7.1 Mutual. Each of Adimab and Merrimack hereby represents and warrants to the other of them that the representing and warranting Party is duly organized in its jurisdiction of incorporation; that the representing and warranting Party has the full power and authority to enter

into this Agreement; that this Agreement is binding upon the representing and warranting Party; and that this Agreement has been duly authorized by all requisite corporate action within the representing and warranting Party.

7.2 By Adimab. Adimab hereby represents and warrants to Merrimack that:

[**]

7.3 Adimab Covenants. Adimab hereby covenants to Merrimack that:

(a) Adimab shall not during the term of this Agreement enter into any agreement or arrangement with a Third Party that would preclude or conflict with the grant to Merrimack of the rights that Adimab grants under this Agreement;

(b) [**] the [**] the [**] of this [**] the [**], and [**] of this [**] and [**] to [**] of [**] by [**] and [**] to the [**] to [**] to the [**] of a [**] the [**] with [**] by the [**] to [**] and [**] the [**] with the [**] and [**] to [**] to a [**] that [**] and [**] of the [**].

(c) [**] and [**] that [**] or the [**], and the [**] of the [**] as [**] and [**].

7.4 Merrimack Covenant. [**] to [**] and [**] of [**] and the [**] as [**] in the [**] or [**] and [**], and [**] and [**] for the [**] in the [**] and [**] and [**] with [**], and the [**].

7.5 DISCLAIMER OF WARRANTIES. OTHER THAN THE EXPRESS WARRANTIES AND COVENANTS OF SECTIONS 7.1, 7.2, 7.3 AND 7.4, EACH PARTY DISCLAIMS ALL WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR THAT ANY PRODUCTS DEVELOPED UNDER THIS AGREEMENT ARE FREE FROM THE RIGHTFUL CLAIM OF ANY THIRD PARTY, BY WAY OF INFRINGEMENT OR THE LIKE OR THAT ANY PROGRAM PATENTS WILL ISSUE OR BE VALID OR ENFORCEABLE.

ARTICLE 8

INDEMNIFICATION

8.1 By Adimab. Adimab hereby agrees to indemnify, defend and hold harmless (collectively, "**Indemnify**") Merrimack, its Affiliates and its and their directors, officers, agents and employees (collectively, "**Merrimack Indemnitees**") from and against any and all liability, loss, damage or expense (including without limitation reasonable attorneys fees) (collectively, "**Losses**") they may suffer as the result of Third-Party claims, demands and actions (collectively, "**Third-Party Claims**") arising out of or relating to any breach of a representation, warranty or covenant made by Adimab under Article 7 or other breach by Adimab of its obligations under this Agreement, except to the extent of any Losses (i) [**].

8.2 By Merrimack. Merrimack hereby agrees to Indemnify Adimab, its Affiliates and its and their directors, officers, agents and employees (collectively, "**Adimab Indemnitees**") from and against any and all Losses they may suffer as the result of Third-Party Claims arising out of or relating to (a) any breach of a representation, warranty or covenant made by Merrimack under Article 7, (b) Merrimack's research, testing, development, manufacture, use, sale, distribution, licensing and/or commercialization of Program Antibodies and/or Products (or Program-Benefited Antibodies or products

incorporating them), or (c) Target-related intellectual property (including Patents directed to antibodies based on their interaction with the Target) and Target-related contractual obligations of Merrimack and its Affiliates, except in each case to the extent of any Losses (i) [**].

8.3 Procedures. Each of the foregoing agreements to Indemnify is conditioned on the relevant Adimab Indemnitees or Merrimack Indemnitees (i) providing prompt written notice of any Third-Party Claim giving rise to an indemnification obligation hereunder, (ii) permitting the indemnifying Party to assume full responsibility to investigate, prepare for and defend against any such Third-Party Claim, (iii) providing reasonable assistance in the defense of such claim at the indemnifying Party's reasonable expense, and (iv) not compromising or settling such Third-Party Claim without the indemnifying Party's advance written consent. If the Parties cannot agree as to the application of the foregoing Sections 8.1 and 8.2, each may conduct separate defenses of the Third-Party Claim, and each Party reserves the right to claim indemnity from the other in accordance with this Article 8 upon the resolution of the underlying Third-Party Claim.

8.4 Limitation of Liability. EXCEPT TO THE EXTENT SUCH PARTY MAY BE REQUIRED TO INDEMNIFY THE OTHER PARTY UNDER THIS ARTICLE 8 (INDEMNIFICATION) OR AS REGARDS A BREACH OF A PARTY'S RESPONSIBILITIES PURSUANT TO ARTICLE 6 (CONFIDENTIALITY), NEITHER PARTY NOR ITS RESPECTIVE AFFILIATES SHALL BE LIABLE FOR ANY SPECIAL, INDIRECT, EXEMPLARY, CONSEQUENTIAL OR PUNITIVE DAMAGES HEREUNDER, WHETHER IN CONTRACT, WARRANTY, TORT, STRICT LIABILITY OR OTHERWISE.

ARTICLE 9

TERM.

9.1 Term. The term of this Agreement shall commence on the Effective Date and shall expire upon (a) the expiration of the Option (if it expires unexercised), or (b) if later, on a country-by-country basis on the expiration of the last Royalty Term for a Product in the particular country (and payment of any required payments to Adimab in such country), in each case, unless earlier terminated by a Party as set forth below in this Article 9.

9.2 Material Breach. Either Party may terminate this Agreement for the material breach of this Agreement by the other Party, if such breach remains uncured [**] days following notice from the non-breaching Party to the breaching Party specifying such breach; provided that, with respect to any such material breach of Merrimack's diligence obligations pursuant to Section 3.4 relating to one or more (but not all) of the Major Regions, if such breach remains uncured [**] days following notice from the non-breaching Party to the breaching Party

specifying such breach, this Agreement shall not terminate, but Merrimack's licenses hereunder shall terminate on a Major Region-by-Major Region basis (and as to the rest of the world) as set forth in Section 3.4; provided that, if Merrimack's licenses hereunder terminate in all three (3) Major Regions pursuant to Section 3.4, this Agreement shall also terminate.

Notwithstanding anything to the contrary in this Section 9.2 above, if the asserted material breach is a payment breach, [**], then this Agreement shall terminate only upon a final determination by a competent court in accordance with Section 10.2 that such a material breach has occurred; and provided that, in the case of a payment breach that is so determined by a competent court to be a basis for termination, this Agreement shall not terminate if, within [**] days after such final determination, Merrimack pays Adimab all amounts held to be owed to Adimab.

9.3 Elective Termination. Merrimack may terminate this Agreement at any time on ninety (90) days prior written notice.

9.4 Commitments Regarding Program-Benefited Antibodies. This Agreement gives Merrimack the right to modify the Licensed Antibodies, by including modified versions of them and derivatives of them that bind the same epitope(s) in the definition of "Product" provided above. Each (a) [**] of a [**] and [**] or a [**], or by [**] or a [**] and that [**] and [**] or [**] as a [**] (nor license, assist or enable a Third Party to do the same).

9.5 Survival in All Cases. Termination of this Agreement shall be without prejudice to or limitation on any other remedies available to nor any accrued obligations of either Party. In addition, Sections 3.3(b) (to avoid doubt, with the perpetual license that the last clause of such Section provides only applying after an expiration of the applicable Royalty Term; no license granted to Merrimack hereunder shall convert to such a perpetual license after any early termination of this Agreement), 4.12, 5.1, 7.2, 9.4, 9.5, and 9.6 and Articles 6, 8 and 10 shall survive any expiration or termination of this Agreement.

9.6 Additional Effects of Termination for Merrimack Fault or Merrimack Elective Termination. If Adimab terminates this Agreement for Merrimack's uncured material breach, or Merrimack terminates this Agreement at-will under Section 9.3, then Merrimack and its Affiliates hereby assign — effective upon such termination — to Adimab all right, title and interest in and to the Licensed Antibody Program Patents, and Merrimack shall either, at Adimab's option, return to Adimab or destroy all Adimab Materials.

ARTICLE 10

MISCELLANEOUS.

10.1 Independent Contractors. The Parties shall perform their obligations under this Agreement as independent contractors. Nothing contained in this Agreement shall be construed to be inconsistent with such relationship or status. This Agreement and the Parties' relationship in connection with it shall not constitute, create or in any way be interpreted as a joint venture, fiduciary relationship, partnership or agency of any kind.

10.2 Dispute Resolution. Either Party may refer any dispute in connection with this Agreement to senior executives of the Parties (for Adimab, its CEO or his designee and for Merrimack, a senior vice president or officer of greater seniority) for good-faith discussions over a period of not less than [**] days (the "**Senior Executives Discussions**"). Each Party will make its executives reasonably available for such discussions. If the Parties are unable to resolve the dispute through the Senior Executives Discussions within such [**] days, then either Party may proceed to seek a judicial resolution of the matter.

10.3 Governing Law. This Agreement shall be governed by and interpreted in accordance with the laws of the State of New York without regard to its conflict of laws principles.

10.4 Entire Agreement. This Agreement (including its Exhibits) sets forth all the covenants, promises, agreements, warranties, representations, conditions and understandings between the Parties with respect to the subject matter hereof and supersedes and terminates all prior agreements and understandings between the Parties with respect to such subject matter (including that certain Confidentiality Agreement between the Parties dated June 12, 2009). No subsequent alteration, amendment, change or addition to this Agreement shall be binding upon the Parties unless reduced to writing and signed by the respective authorized officers of the Parties.

10.5 Assignment. Neither Party may assign in whole or in part this Agreement without the advance written consent of the other Party, except as set forth in the following sentence. Either Party may assign this Agreement in its entirety to the successor to all or substantially all of its business or assets to which this Agreement relates or in connection with its merger with, or the sale of all or substantially all of its assets to which this Agreement relates to, another entity. In addition, Adimab may assign this Agreement, or any of its rights under this Agreement, in connection with the sale of, monetization of, transfer of, or obtaining financing on the basis of the payments due to Adimab under this Agreement or debt or project financing in connection with this Agreement, it being understood and agreed that such assignment shall not undo the license or assignment to Merrimack in Section 3.3 in the case that Merrimack exercises or has exercised its Option. Notwithstanding the foregoing, in the case of any permitted assignment (other than a partial assignment of this Agreement by Adimab under the foregoing sentence), the assignment shall only be made if the assignee agrees in writing to be bound by all terms and conditions applicable to the assigning Party, and (in all cases, including in the case of a partial assignment of this Agreement by Adimab under the foregoing sentence) the assigning Party shall remain primarily liable to the other Party for the performance of all of the assigning Party's obligations hereunder. Subject to the foregoing, this Agreement shall be binding upon and shall inure to the benefit of the Parties and their respective successors and permitted assigns. Any assignment of this Agreement not made in accordance with this Agreement is prohibited hereunder and shall be null and void.

10.6 Severability. If one or more of the provisions in this Agreement are deemed unenforceable by law, then such provision shall be deemed stricken from this Agreement and the remaining provisions shall continue in full force and effect.

10.7 Force Majeure. Both Parties shall be excused from the performance of their obligations under this Agreement to the extent that such performance is prevented by a Force Majeure (defined below) and the nonperforming Party promptly provides notice of the prevention to the other Party. Such excuse shall be continued so long as the condition constituting Force Majeure continues and the nonperforming Party takes reasonable efforts to remove the condition, but no longer than six (6) months. For purposes of this Agreement, "**Force Majeure**" means conditions beyond a Party's reasonable control or ability to plan for, including acts of God, war, terrorism, civil commotion, labor strike or lock-out; epidemic; failure or default of public utilities or common carriers; and destruction of production facilities or materials by fire, earthquake, storm or like catastrophe; *provided*, *however*, the payment of invoices due and owing under this Agreement shall not be excused by reason of a Force Majeure affecting the payor.

10.8 Notices. Any notice required or permitted to be given under this Agreement shall be in writing, shall specifically refer to this Agreement and shall be deemed to have been sufficiently given for all purposes if mailed by first class certified or registered mail, postage prepaid, delivered by express delivery service or personally delivered. Unless otherwise specified in writing, the mailing addresses of the Parties shall be as described below.

If to Adimab:

Adimab, Inc.
16 Cavendish Court
Lebanon, NH 03766
(603) 727-7107
Attention: CEO
Facsimile: [**]

with a required copy to each of :

Attention: Head, Business Development at the same address and fax.

and

Morrison & Foerster LLP
425 Market Street
San Francisco, CA 94105
Attention: Laura O. Spiegelman
Facsimile: [**]

In the case of Merrimack:

Merrimack Pharmaceuticals, Inc.
One Kendall Square, Suite B7201
Cambridge, MA 02139
Attention: SVP, Business Development
Facsimile: [**]

with a required copy to:

WilmerHale
60 State Street
Boston, MA 02109
Attention: Steven D. Barrett
Facsimile: (617) 526-5000

10.9 Construction. This Agreement has been prepared jointly and shall not be strictly construed against either Party. Ambiguities, if any, in this Agreement shall not be construed against any Party, irrespective of which Party may be deemed to have authored the ambiguous provision.

10.10 Headings. The headings for each article and section in this Agreement have been inserted for convenience of reference only and are not intended to limit or expand on, nor to be used to interpret, the meaning of the language contained in the particular article or section.

10.11 No Waiver. Any delay in enforcing a Party's rights under this Agreement or any waiver as to a particular default or other matter shall not constitute a waiver of such Party's rights to the subsequent enforcement of its rights under this Agreement, excepting only as to an express written and signed waiver as to a particular matter for a particular period of time executed by an authorized officer of the waiving Party.

10.12 Performance by Affiliates. A Party may perform some or all of its obligations under this Agreement through Affiliate(s) or may exercise some or all of its rights under this Agreement through Affiliates. However, each Party shall remain responsible and be guarantor of the performance by its Affiliates and shall cause its Affiliates to comply with the provisions of this Agreement in connection with such performance. In particular and without limitation, all Affiliates of a Party that receive Confidential Information of the other Party pursuant to this Agreement shall be governed and bound by all obligations set forth in Article 6, and shall (to avoid doubt) be subject to the intellectual property license, assignment and other intellectual property provisions of Articles 3 and 5 as if they were the original Party to this Agreement (and be deemed included in the actual Party to this Agreement for purposes of all intellectual property-related definitions). A Party and its Affiliates shall be jointly and severally liable for their performance under this Agreement.

10.13 Counterparts. This Agreement may be executed in one or more identical counterparts, each of which shall be deemed to be an original, and which collectively shall be deemed to be one and the same instrument. In addition, signatures may be exchanged by facsimile or PDF.

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IN WITNESS WHEREOF, the Parties have by duly authorized persons executed this Agreement as of the date first written above.

MERRIMACK PHARMACEUTICALS, INC.:		**ADIMAB, INC.:**	
By:	/s/ Robert J. Mulroy	By:	/s/ Errik B. Anderson
Title:	President and CEO	Title:	COO
Date:	Nov. 16, 2009	Date:	Nov. 16, 2009

EXHIBIT A

RESEARCH PLAN

See following pages.

Adimab-Merrimack Collaboration Work Plan

[**]

Summary of Proposed Work Plan

[**]

Confidential materials omitted and filed separately with the Securities and Exchange Commission pursuant to a request for confidential treatment. A total of three pages were omitted.

Work Plan

Confidential materials omitted and filed separately with the Securities and Exchange Commission pursuant to a request for confidential treatment. A total of four pages were omitted.

[**]

FIRST AMENDMENT

THIS FIRST AMENDMENT (the "**Amendment**") is made as of 4/27, 2010 (the "**Amendment Effective Date**"), by and between **ADIMAB, INC**., a Delaware corporation having an address at 16 Cavendish Court, Lebanon, NH 03766 ("**Adimab**") and **MERRIMACK PHARMACEUTICALS, INC.,** a Massachusetts corporation having an address at One Kendall Square, Suite B7201, Cambridge, MA 02139 ("**Merrimack**").

BACKGROUND

1. Adimab and Merrimack are parties to that certain Collaboration Agreement dated November 16, 2009 ("**Collaboration Agreement**").

2. Adimab and Merrimack wish to amend the Collaboration Agreement to expand the Research Plan and make certain related amendments.

AGREEMENT

Adimab and Merrimack hereby agree as follows:

1. Initially capitalized terms used but not defined in this First Amendment shall have the meanings given in the Collaboration Agreement.

2. The Collaboration Agreement is hereby amended to add to the Research Plan of Exhibit A to the Collaboration Agreement, all of the activities set forth in Exhibit A to this Amendment

3. Without limiting Adimab's data disclosure rights under the Collaboration Agreement as originally executed, the Collaboration Agreement is hereby amended such that data generated by Merrimack pertaining to the Research Plan effected by this Amendment ("**Amendment/New Data**") shall be included under and governed by Section 6.7 of the Collaboration Agreement.

4. Except as amended above, the Collaboration Agreement remains unchanged and in full force and effect.

5. Article 10 of the Collaboration Agreement applies to this Amendment as if set forth herein in its entirety.

[remainder of page intentionally blank]

IN WITNESS WHEREOF, the Parties have by duly authorized persons executed this Agreement as of the date first written above.

MERRIMACK PHARMACEUTICALS, INC.:		**ADIMAB, INC.:**	
By:	/s/ Edward J. Stewart	By:	/s/ Errik B. Anderson
Title:	SVP, Business Development	Title:	COO
Date:	April 27, 2010	Date:	4/27/2010

EXHIBIT A TO FIRST AMENDMENT

ADDITION TO RESEARCH PLAN

Confidential materials omitted and filed separately with the Securities and Exchange Commission pursuant to a request for confidential treatment. A total of two pages were omitted.

[**]

SECOND AMENDMENT

THIS SECOND AMENDMENT (the "**Amendment**") is made as of June 2, 2011 (the "**Amendment Effective Date**"), by and between **ADIMAB, LLC**, a Delaware limited liability company having an address at 16 Cavendish Court, Lebanon, NH 03766 ("**Adimab**") and **MERRIMACK PHARMACEUTICALS, INC.,** a Delaware corporation having an address at One Kendall Square, Suite B7201, Cambridge, MA 02139 ("**Merrimack**").

BACKGROUND

1. Adimab and Merrimack are parties to that certain Collaboration Agreement dated November 16, 2009 and first amended April 27, 2010 ("**Collaboration Agreement**").

2. To avoid any confusion, the original Adimab signatory to the Collaboration Agreement was "Adimab, Inc., a Delaware corporation." Effective December 31, 2010, Adimab, Inc., a Delaware corporation merged into Adimab, LLC, a Delaware limited liability company, such that Adimab, LLC is the current Adimab party to the Collaboration Agreement.

3. Adimab and Merrimack wish to amend the Collaboration Agreement to provide accommodation to Merrimack on the first Therapeutic Development Milestone event under the Collaboration Agreement.

4. Merrimack is the successor to Merrimack Pharmaceuticals, Inc., a Massachusetts corporation.

AGREEMENT

Adimab and Merrimack hereby agree as follows:

1. Initially capitalized terms used but not defined in this Second Amendment shall have the meanings given in the Collaboration Agreement.

2. By way of background, the Research Term under the Collaboration Agreement expired on [**], such that the deadline under Section 4.4(a)(i) as originally written for Merrimack to have the right to pay [**] dollars rather than [**] dollars in respect of Therapeutic Development Milestone event 1 ("[**]") was [**].

3. The language in the cell of the milestone table in Section 4.4(a) that is in the righthand column, in the second row (the row for Therapeutic Development Milestone event 1) that reads "[**] Dollars ($[**]), subject to reduction to [**] Dollars as provided in Section 4.4(a)(i)" is hereby amended to read "[**] Dollars ($[**]) subject to reduction as provided in Section 4.4(a)(i)."

4. Section 4.4(a)(i) of the Collaboration Agreement is hereby deleted and replaced with the following:

"(i) The payment for Therapeutic Development Milestone 1 shall be reduced by X, where X is equal to [**] Dollars ($[**]) minus [**] that such Therapeutic Development Milestone 1 is achieved. A [**] for this purpose shall mean any [**] that is not a [**]. As non-limiting examples:

[**]

For the avoidance of doubt, Merrimack shall not have to pay Adimab more than [**] Dollars ($[**]) in respect of such achievement of Therapeutic Development Milestone 1 under any circumstances.

5. This Amendment is being entered into effective as of the same date as that certain Second Collaboration Agreement between the Parties. The consideration to Adimab, with respect to the accommodations to Merrimack set forth in this Amendment, is contained in that Second Collaboration Agreement.

6. There shall be a press release with respect to the existence of the Collaboration Agreement, and the speed with which antibodies discovered are entered into the clinic. The Parties shall mutually cooperate to mutually agree as to the wording of such an announcement. Notwithstanding the foregoing, public disclosure shall be permitted in language and on a timeline that at a minimum ensures compliance with Securities and Exchange Commission and other regulations. Section 6.6 of the Collaboration shall remain otherwise unchanged and this Section 6 shall not be used to interpret or limit either Party's disclosure rights under Section 6.6 of the Collaboration Agreement.

7. The address for the required copy to Adimab's counsel of written notices under Section 10.8 of the Collaboration Agreement is hereby updated to reflect the following information:

Spiegelman Life Sciences
1459 Eighteenth Street — PMB 309
San Francisco, CA 94107
Attention: Laura O. Spiegelman
fax [**]

8. Except as amended above, the Collaboration Agreement remains unchanged and in full force and effect.

9. Adimab shall be entitled to terminate this Amendment by written notice to Merrimack if Merrimack does not execute and deliver to Adimab, within 2 Business Days after the Amendment Effective Date, the Second Collaboration Agreement for which Adimab is providing its signature alongside Adimab's signature on this Amendment.

10. Article 10 of the Collaboration Agreement applies to this Amendment as if set forth herein in its entirety.

IN WITNESS WHEREOF, the Parties have by duly authorized persons executed this Agreement as of the date first written above.

MERRIMACK PHARMACEUTICALS, INC.:		**ADIMAB, LLC:**	
By:	/s/ William A. Sullivan	By:	/s/ Errik B. Anderson
Title:	CFO	Title:	COO

Date: 6/1/2011 Date: 6/2/11

Exhibit 10.23

CONFIDENTIAL DOCUMENT

Confidential Materials omitted and filed separately with the
Securities and Exchage Commission. Asterisks denote omissions.

SUBLICENSE AGREEMENT

This SUBLICENSE AGREEMENT ("Sublicense"), dated effective as of June 30, 2008 (the "Effective Date"), is entered into between **DYAX CORP.,** a Delaware corporation, of 300 Technology Square, Cambridge, Massachusetts 02139 ("Dyax"), and Merrimack Pharmaceuticals, Inc. a Massachusetts corporation of One Kendall Square, Building 700, Cambridge, MA 02139 ("Sublicensee").

WHEREAS, under the terms of that certain Amended and Restated License Agreement by and between Dyax and Cambridge Antibody Technology Limited, now known as MedImmune Limited ("MedImmune"), dated July 30, 2007, as amended to date, Dyax has the right to obtain product licenses, on a target-by-target basis, to develop and commercialize therapeutic and diagnostic antibody products identified using MedImmune's proprietary technology and know-how;

WHEREAS, Dyax and MedImmune have executed one such product license, under which MedImmune granted Dyax rights to develop and commercialize therapeutic and diagnostic antibody products to the target described on Attachment A (the "Product License");

WHEREAS, a redacted version of the Product License is attached hereto as Attachment B;

WHEREAS, pursuant to the Amended and Restated Collaboration Agreement, dated effective January 24, 2007 (the "Collaboration Agreement"), Sublicensee has the right to obtain through Dyax a sublicense of the Product License; and

WHEREAS, Sublicensee desires to obtain through Dyax a sublicense of the Product License.

NOW THEREFORE, in consideration of the premises and the mutual covenants contained herein, and for other good and valuable consideration, the receipt of which is hereby acknowledged, the parties agree as follows:

1. GRANT OF SUBLICENSE.

Subject to the terms and conditions set forth in Section 2 of this Sublicense, Dyax hereby grants to Sublicensee a world-wide, non-exclusive license of the rights granted to it under Clause 2.1 of the Product License. Sublicensee is permitted to sublicense its rights under this Sublicense in accordance with the terms and conditions set forth in Clauses 3.1 through 3.4 of the Product License.

2. SUBLICENSEE OBLIGATIONS.

2.1 Obligations Under Product License.

(a) Sublicensee agrees to abide by all of the terms and conditions applicable to Dyax and/or Sublicensee (as a Dyax Sublicensee) under the Product License and agrees that all obligations of Dyax to MedImmune under the Product License shall also be obligations of Sublicensee to Dyax, except for (i) any obligations of Dyax contained in Clause 6 (Consideration) and Clause 7 (Provisions Relating to the Payment of Consideration) of the

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Product License and (ii) any portion of the Product License that has been redacted by Dyax. Notwithstanding the foregoing, Sublicensee's obligations pursuant to this Section 2.1 are conditional upon (i) Sublicensee receiving timely notice (in the manner provided in Section 10.2 of the Collaboration Agreement) from Dyax relating to (a) any change in such terms and conditions, and (b) any notice, claim or demand made by MedImmune under the Product License; and (ii) the parallel performance of Dyax to the extent both parties are required to perform to satisfy the obligations of Dyax or Sublicensee (as a Dyax Sublicensee) under the Product License.

(b) Sublicensee shall be entitled to the benefit of any diligence period extensions obtained by Dyax under Clause 11.2.1 of the Product License that are requested and paid for by Sublicensee on the following terms:

First Annual Extension	**$**	**[**]**
Second Annual Extension	**$**	**[**]**

[**].

2.2 Obligations Under Collaboration Agreement. Sublicensee acknowledges and agrees that all of the terms and conditions contained in the Collaboration Agreement, as amended to date, remain in full force and effect, and Sublicensee agrees to abide by all of its obligations set forth thereunder.

2.3 Milestones and Royalties. Notwithstanding anything to the contrary contained in the Product License, the sublicense granted to Sublicensee under Section 1 of this Sublicense shall be subject to only the milestone and royalty payments set forth in Article 4 of the Collaboration License Agreement and Sublicensee shall have no payment obligations under the Product License or this Sublicense.

2.4 Indemnification for Sublicensee Breach. Sublicensee shall indemnify and hold Dyax and its Affiliates, officers, directors, employees and agents ("Dyax Indemnified Parties") harmless from and against any liability, damage, loss or expense (including reasonable attorney fees and expenses of litigation) incurred by the Dyax Indemnified Parties to MedImmune under or arising out of the Product License, to the extent that such liability, damage, loss

or expense was incurred by any of the Dyax Indemnified Parties as a result of a breach of this Sublicense or the Collaboration Agreement by Sublicensee or any of its Affiliates or sublicensees.

3. DYAX OBLIGATIONS.

3.1 Obligations Under Collaboration Agreement. Dyax acknowledges and agrees that all of the terms and conditions contained in the Collaboration Agreement, as amended to date, remain in full force and effect, and Dyax agrees to abide by all of its obligations set forth thereunder.

3.2 Amendment to Product License. Dyax agrees that it shall not amend the Product License in any way that materially and adversely affects or reduces the rights and licenses granted to Sublicensee under this Sublicense.

3.3 Indemnification for Dyax Breach. Dyax shall indemnify and hold Sublicensee and its officers, directors and agents ("Sublicensee Indemnified Parties") harmless from and against any liability of loss incurred by the Sublicensee Indemnified Parties to MedImmune under the Product License, to the extent that such liability was incurred by Sublicensee as a results of a breach of the Product License by Dyax.

4. TERM AND TERMINATION.

This Sublicense shall expire upon expiration of the Product License and shall terminate upon termination of the Product License; provided that, at Sublicensee's election, upon termination of the Product License, Sublicensee's rights hereunder will continue in force provided that Sublicensee is not in breach of this Sublicense and agrees to enter into a direct agreement with MedImmune upon the terms of the Product License.

5. MISCELLANEOUS.

MedImmune shall be a third party beneficiary of this Sublicense and shall have the right to enforce its terms (and claim damages as a result of any breach). This Sublicense shall be not be assignable by Sublicensee, except that Sublicensee may assign the benefit and/or burden of this Sublicense to any Affiliate of it or any Third Party ("Affiliate" and "Third Party" being defined in the Collaboration Agreement), provided that such Affiliate or Third Party undertakes to Dyax to be bound by the terms of this Sublicense. This Sublicense shall be binding upon, and shall inure to the benefit of, the parties hereto and their successors and assigns. This Sublicense may be not be amended except pursuant to a written instrument signed by parties hereto. No provisions of this Sublicense may be waived except by an instrument in writing signed by the party sought to be bound. Neither this Sublicense nor any part hereof, including this provision against oral modifications, may be modified, waived or discharged except pursuant to a written agreement signed by both parties.

IN WITNESS WHEREOF, the parties have caused this Sublicense to be executed by their respective duly authorized representatives as of the Effective Date.

DYAX CORP.

By: /s/ Andrew Ashe

Name: Andrew Ashe

Title: VP, Assoc. General Counsel

MERRIMACK PHARMACEUTICALS, INC.

By: /s/ Edward J. Stewart

Name: Edward J. Stewart

Title: VP, Business Development

/s/ Lisa A. Evren

Lisa A. Evren

SVP & CFO

ATTACHMENT A

[**]

Identification of Target: **[**]**

GenBank accession number: **[**]**

Swiss Prot number: **[**]**

ATTACHMENT B

Private & Confidential

DATED AS OF 23 JUNE 2008

MEDIMMUNE LIMITED

and

DYAX CORP.

DYAX PRODUCT LICENCE FOR [**]

THIS AGREEMENT is made as of 23 June 2008

BETWEEN:

(1) **MEDIMMUNE LIMITED** (Registered in England No. 2451177) whose registered office is at Milstein Building, Granta Park, Cambridge, Cambridgeshire, CB1 6GH, UK ("**MedImmune**").

(2) **DYAX CORP.** a corporation organised and existing under the laws of the State of Delaware having its principal place of business at 300 Technology Square, Cambridge, Massachusetts 02139 USA ("**Dyax**").

BACKGROUND:

(a) By the terms of the Amended and Restated Agreement (as defined below), MedImmune granted Dyax certain options to be granted Dyax Product Licences under the Antibody Phage Display Patents and MedImmune Know How (all as defined below).

(b) Dyax has nominated the Target (which was identified prior to the execution of the Amended and Restated Agreement), and this Target has passed the MedImmune Gatekeeping Procedure (each as defined below).

(c) By this Agreement MedImmune wishes to grant to Dyax a Dyax Product Licence in respect of Diagnostic Antibody Products and Therapeutic Antibody Products against the Target.

In consideration of the mutual covenants and undertakings set out below, **THE PARTIES AGREE** as follows:

1. **Definitions**

1.1 In this Agreement, the terms defined in this Clause shall have the meanings specified below:

"**Acceptance Fee**" means **[REDACTED].**

[REDACTED].

"**Additional License Allocation**" means the options for licenses granted pursuant to Clause 3.5 of the Amended Agreement.

"**Affiliate**" means any company, partnership or other entity which directly or indirectly Controls, is Controlled by or is under common Control with any other entity.

"**Agreement**" means this Dyax Product Licence and any and all Schedules, appendices and other addenda to it as may be amended from time to time in accordance with the provisions of this agreement.

"**Amended Agreement**" means the Amended and Restated Agreement executed by Dyax and MedImmune on July 30, 2007.

"**Antibody**" means a molecule or a gene encoding such a molecule comprising or containing one or more immunoglobulin variable domains or parts of such domains or any existing or future fragments, variants, modifications or derivatives thereof.

"**Antibody Library**" means any antibody library constructed using processes which are covered by a claim of an issued and unexpired patent included within the Antibody Phage Display Patents which has not been held permanently revoked, unenforceable or invalid by a decision of a court or other governmental agency of competent jurisdiction unappealed within the time allowed for appeal, and which has not been admitted to be invalid or unenforceable through reissue or disclaimer or otherwise.

"**Antibody Phage Display Patents**" means: (a) the patents and patent applications listed in Schedule 1 and any patents issuing from such patent applications, together with any divisions, registrations, confirmations, reissues, extensions, renewals, continuations, continuations-in-part, revalidations, additions, substitutions, renewals or supplementary protection certificates thereof throughout the world; and (b) any Patent Rights which claim or cover any invention or discovery which is developed by MedImmune or its Affiliates at any time during the term of this Agreement

directly related to Antibody phage display or Antibody Services; *provided, however,* that Antibody Phage Display Patents shall always exclude (i) MedImmune Diabodies Patent Rights, (ii) any Patent Rights owned or controlled by MedImmune which claim or cover Catalytic Antibodies, (iii) any Patent Rights owned or controlled by MedImmune which claim ribosome display technology, (iv) any Patent Rights which claim Single Domain Antibodies, and (v) any Patent Rights acquired by MedImmune after the Commencement Date from any Third Party for consideration or as a result of MedImmune's acquisition of or merger with such Third Party.

"**Antibody Services**" means the provision of research and/or development services for the identification, generation, derivation or development of one or more MedImmune Antibody Libraries or Antibodies derived therefrom.

"**Business Day**" means a day (other than a Saturday or Sunday) on which the banks are ordinarily open for business in the City of London and the Commonwealth of Massachusetts.

"MedImmune Diabodies Patent Rights" means (a) the Patent Rights entitled "Diabodies — multivalent and multispecific binding proteins, their manufacture and use", PCT/GB93/02492 and (b) the Patent Rights entitled "Retargeting antibodies and diabodies", PCT/GB94/02019.

"MedImmune Gatekeeping Procedure" means the procedure set out in Schedule 2 of the Amended Agreement which MedImmune has carried out in respect of the Target prior to the grant of this Dyax Product Licence.

"MedImmune Know-How" means any Confidential Information of MedImmune which constitutes unpatented know-how, technical and other information related to the subject matter of the Antibody Phage Display Patents as identified in Schedule 2 and as amended from time to time in accordance with Schedule 2.

"MedImmune Licensable Antibody" means any Antibody (including any Bi-Specific or Poly-Specific

Antibody) to the Target (a) where such Antibody has been identified, generated, developed, produced or derived by Dyax or a Dyax Sublicensee or its sublicensees and (b) the identification, generation, development, production or derivation of such Antibody uses any of the processes claimed or covered by a claim of an issued and unexpired patent included within the Antibody Phage Display Patents (which has not been held permanently revoked, unenforceable or invalid by a decision of a court or other governmental agency of competent jurisdiction unappealed within the time allowed for appeal, and which has not been admitted to be invalid or unenforceable through reissue or disclaimer or otherwise) or uses the MedImmune Know-How and (c) which is potentially useful for the development of any Diagnostic Antibody Product and/or any Therapeutic Antibody Product.

"**Catalytic Antibodies**" means solely those Antibodies which bind to and catalyze the chemical transformation of a substrate and in which an Antibody binding region is involved in said catalysis.

"**Commencement Date**" means the date of this Agreement first written above.

"**Competent Authority**" means any national or local agency, authority, department, inspectorate, minister, ministry official, parliament or public or statutory person (whether autonomous or not) of any government of any country having jurisdiction over either any of the activities contemplated by this Agreement or the Parties including the European Commission, the Court of First Instance and the European Court of Justice.

"**Controls**" means the ownership, directly or indirectly, of more than fifty percent (50%) of the outstanding equity securities of a corporation which are entitled to vote in the election of directors or a more than fifty percent (50%) interest in the net assets or profits of an entity which is not a corporation.

"**Diagnostic Antibody Product**" means any preparation in the form of a device, compound, kit or service with utility in the diagnosis, prognosis, prediction or disease management of a disorder for any indication which contains, comprises or the process of development or manufacture of which utilises a MedImmune Licensable Antibody. The term "Diagnostic Antibody Product" shall not include any Research Product,

"**Dyax Therapeutic Antibody Product**" means any Therapeutic Antibody Product identified, generated or derived by Dyax for itself or its Affiliates but not a Therapeutic Antibody Product identified, generated or derived by Dyax for, or on behalf of, a Third Party.

"**Dyax Sublicensee**" means any Third Party who is granted a sublicense under Clause 3.4 of this Agreement to Exploit Products against the Target in the Territory.

"**Exploit**" means to make, have made, use, sell or import.

"**FDA**" means the United States Food and Drug Administration, the equivalent Competent Authority in any country of the Territory or any successor bodies thereto.

"**First Commercial Sale**" means the first commercial sale of any Product by Dyax or a Dyax Sublicensee (or its sublicensee) in any country after grant of a Marketing Authorisation.

"**Force Majeure**" means any event outside the reasonable control of either Party affecting its ability to

perform any of its obligations (other than payment) under this Agreement, including Act of God, fire, flood, lightning, war, revolution, act of terrorism, riot or civil commotion, but excluding strikes, lock-outs or other industrial action, whether of the affected Party's own employees or others, failure of supplies of power, fuel, transport, equipment, raw materials or other goods or services.

"**GAAP**" means United States generally accepted accounting principles, consistently applied.

"**IDE**" means an Investigational Device Exemption application, as defined in Title 21 of the United States Code of Federal Regulations, filed with the FDA or an equivalent foreign filing.

"**IND**" means an Investigational New Drug Application, as defined in Title 21 of the United States Code of Federal Regulations, that is required to be filed with the FDA before beginning Phase I Clinical Trials of any Therapeutic Antibody Product in human subjects, or an equivalent foreign filing.

"**Major Market**" means any one of the following: (i) the United States of America, (ii) any country in Europe which is subject to the Marketing Authorisation procedure of the European Medicines Evaluation Agency, or (iii) Japan.

"**Marketing Authorisation**" means any approval (including all applicable pricing and governmental reimbursement approvals) required from the FDA or relevant Competent Authority to market and sell a Product in a particular country.

"**Net Sales**" means, with respect to a Product sold by Dyax or a Dyax Sublicensee (or its sublicensees), the price invoiced by that party to the relevant purchaser (or in the case of a sale or other disposal otherwise than at arm's length, the price which would have been invoiced in a bona fide arm's length contract or sale) but deducting the costs of packing, transport and insurance, customs duties, any credits actually given for returned or defective Products, normal trade discounts actually given, and sales taxes, VAT or other similar tax charged on and included in the invoice price to the purchaser.

"**Party**" means MedImmune or Dyax.

"**Patent Rights**" means any patent applications and any patents issuing from such patent applications, author certificates, inventor certificates, utility certificates, improvement patents and models, and certificates of addition and all counterparts of them throughout the Territory, including any divisional applications and patents, filings, renewals, continuations, continuations-in-part, patents of addition, extensions, reissues, substitutions, confirmations, registrations, revalidation and additions of or to any of them, as well as any supplementary protection certificates and equivalent protection rights in respect of any of them.

"**Pharmacia Agreement**" means the agreement between MedImmune and Pharmacia P-L Biochemicals Inc. dated 11 September 1991.

"**Pharmacia P-L Biochemicals Inc.**" means Pharmacia P-L Biochemicals Inc (now known as Amersham Biosciences).

"**Phase I Clinical Trial**" means a human clinical trial in any country that is intended to initially evaluate the safety of an investigational Product in volunteer subjects or patients that would satisfy the requirements of 21 CFR 312.21(a), or its foreign equivalent and may evaluate the Product's therapeutic or antigenic effects.

"**Phase III Clinical Trial**" means a pivotal human clinical trial in any country the results of which could be used to establish safety and efficacy of a Product as a basis for a marketing application that would satisfy the requirements of 21 CFR 312.21(c).

"**Product**" means a Diagnostic Antibody Product or a Therapeutic Antibody Product.

"**Dyax Product Licence**" means the licence granted to Dyax pursuant to Clause 2 of this Agreement.

"**Quarter**" means each period of three (3) months ending on March 31, June 30, September 30, or December 31 and "**Quarterly**" shall be construed accordingly.

"**Research Products**" means any product in relation to which Pharmacia P-L has an exclusive licence from MedImmune pursuant to the Pharmacia Agreement.

"**Single Domain Antibodies**" means an Antibody containing only a single domain (heavy or light).

"**Status Report**" has the meaning set forth in Clause 4.1.

"**Target**" means [**], as set out in Schedule 3.

"**Territory**" means all countries of the world.

"**Therapeutic Antibody Product**" means any preparation for the treatment or prevention of disease, infection or other condition in humans for any indication which contains, comprises, or the process of development or manufacture of which utilises, a MedImmune Licensable Antibody. The term "**Therapeutic Antibody Product**" shall not include any Research Product,

"**Third Party**" means any entity or person other than Dyax, MedImmune or their respective Affiliates.

"**Valid Claim**" means a claim of an issued and unexpired patent included within the Antibody Phage Display Patents which have been licensed to MedImmune by the MRC which has not been held permanently revoked, unenforceable or invalid by a decision of a court or other governmental agency of competent jurisdiction unappealed within the time allowed for appeal, and which has not been admitted to be invalid or unenforceable through reissue or disclaimer or otherwise.

"**Year**" means initially the period from the Commencement Date to the end of that calendar year, and subsequently a calendar year.

1.2 The headings to clauses are inserted for convenience only and shall not affect the interpretation or construction of this Agreement.

1.3 Words imparting the singular shall include the plural and vice versa. References to persons include an individual, company, corporation, firm or partnership.

1.4 The words and phrases "other", "including" and "in particular" shall not limit the generality of any preceding words or be construed as being limited to the same class as any preceding words where a wider construction is possible.

1.5 References to any statute or statutory provisions of the United Kingdom shall include (i) any subordinate legislation made under it, (ii) any provision which it has superseded or re-enacted (whether with or without modification), and (iii) any provision which subsequently supersedes it or re-enacts it (whether with or without modification. References to any statute or regulation of the United States of America means that statute or regulation as it may be amended, supplemented or otherwise modified from time to time, and any successor statute or regulation.

2. **Grant of Dyax Product Licence**

2.1 Subject to Clause 2.4 below, MedImmune hereby grants to Dyax and its Affiliates a non-exclusive, royalty-bearing licence (on the terms of this Agreement) with the right to sublicense (on the terms of Clause 3) under the Antibody Phage Display Patents and MedImmune Know-How to Exploit Products against the Target in the Territory.

2.2 The Dyax Product Licence granted under this Agreement is pursuant to Dyax's exercise of one (1) option from the Additional Licence Allocation under the Amended Agreement.

2.3 For the avoidance of doubt, no rights are granted by MedImmune under this Agreement to any MedImmune Diabodies Patent Rights, and any Patent Rights owned or controlled by MedImmune which claim Catalytic Antibodies, ribosome display technology, any Patent Rights which claim Single Domain Antibodies and no rights are granted by MedImmune in this Agreement under the Antibody Phage Display Patents to Exploit Research Products.

2.4 This Dyax Product Licence shall come into effect upon the date that the full amount of the Acceptance Fee is received by MedImmune. The Acceptance Fee of **[REDACTED]** will be due upon execution of this Product Licence. The Acceptance Fee shall not be refundable or creditable against any other sums which may be payable by Dyax or a Dyax Sublicensee to MedImmune pursuant to this Agreement.

3. **Sub-Licensing**

3.1 Dyax will, if requested by MedImmune, inform MedImmune of the identity of all Dyax Sublicensees (and their sublicensees) in relation to this Agreement.

3.2 Dyax will ensure that any Third Party which receives a sublicence of its rights in accordance with the terms of this Agreement executes a written agreement which requires the Third Party to abide by the terms of this Agreement.

3.3 Dyax will be liable for any breach of the sublicences granted in accordance with Clause 3.2.

3.4 For the avoidance of doubt, the rights granted to Dyax to Exploit Products against the Target in the Territory may be sublicensed to one or more Third Parties (and further sublicensed by any such Third Party), provided that any such sublicense would remain subject to the terms and conditions of this Agreement.

4. **Status Report**

4.1 Dyax will provide to MedImmune a brief summary of the status of each Product against the Target that Dyax or Dyax Sublicensees desire to Exploit under this Agreement ("**Status Report**"). During the Term, Dyax will submit such Status Report to MedImmune for a particular Product prior to the time Dyax or Dyax Sublicensees begin the first human clinical trial with respect to such Product. Dyax will prepare and provide to MedImmune an annual update to such Status Report by March 31st of each year which will summarize the status of the particular Product in the preceding calendar year.

5. **Gatekeeping**

The Parties acknowledge that, as of the Commencement Date, the Target has passed MedImmune's Gatekeeping Procedure under the Amended Agreement.

6. **Consideration**

6.1 Therapeutic Antibody Products

6.1.1 With respect to Therapeutic Antibody Products, Dyax shall pay to MedImmune the following payments upon achievement of the specified milestones by Dyax or a Dyax Sublicensee (or its sublicensee) for the first Therapeutic Antibody Product to achieve the relevant milestone:

Initiation of first Phase I Clinical Trial	**[REDACTED]**
Initiation of first Phase III Clinical Trial	**[REDACTED]**
First filing for Marketing Authorisation in one Major Market country	**[REDACTED]**
Marketing Authorisation granted in the United States	**[REDACTED]**

6.1.2 With respect to Therapeutic Antibody Products, Dyax shall pay MedImmune royalties in an amount equal to **[REDACTED]** of Net Sales of the Therapeutic Antibody Product sold by or on behalf of Dyax or the Dyax Sublicensee.

6.2 Diagnostic Products

6.2.1 With respect to Diagnostic Antibody Products, Dyax shall pay to MedImmune the following payments upon achievement by Dyax or a Dyax Sublicensee (or its sublicensee) of the milestones set out below. For the avoidance of doubt the milestone payments shall be payable in respect of the first Diagnostic Antibody Product to achieve the relevant milestone:

First filing for Marketing Authorisation in one Major Market country	**[REDACTED]**
Marketing Authorisation granted in each Major Market Country	**[REDACTED]**

6.2.2 With respect to Diagnostic Antibody Products, Dyax shall pay MedImmune royalties on a country-by-country basis in an amount equal to **[REDACTED]** of Net Sales of Diagnostic Antibody Products sold by or on behalf of Dyax or any Dyax Sublicensee.

6.3 All royalties due to MedImmune pursuant to Clauses 6.1.2 and 6.2.2 shall be payable on a country-by-country basis until the last Valid Claim expires or ten (10) years from the date of First Commercial Sale of such Product, whichever occurs later.

7. **Provisions Relating to Payment of Consideration**

7.1 All milestone payments shall be paid by Dyax within **[REDACTED]** of the applicable milestone being achieved and no milestone payments shall be refundable or creditable against any other sum payable by Dyax hereunder for any reason.

7.2 Dyax shall make the payments due to MedImmune under Clause 6 above in United States dollars (if Dyax in turn receives payment in dollars) or in pounds sterling (if Dyax in turn receives payment in pound sterling), or Euros (if Dyax in turn receives payment in Euros). Where Dyax receives payment in a currency other than United States dollars, pounds sterling or Euros, Dyax will convert the relevant sum into pounds sterling (or Euros if Euros have replaced pounds sterling at the time of payment). Dyax will use the conversion rate reported in the Financial Times **[REDACTED]** Business Days before the day on which Dyax pays MedImmune. Such payment will be made without deduction of exchange, collection or other charges. All payments will be made at Quarterly intervals. Within **[REDACTED]** of the end of each Quarter after the First Commercial Sale of each Product in any country, Dyax shall prepare a statement which shall show on a country-by-country basis for the previous Quarter Net Sales of each Product by Dyax or its Affiliates and all monies due to MedImmune based on such Net Sales. That statement shall include details of Net Sales broken down to show the country of the sales and the total Net Sales by Dyax or its Affiliates in such country and shall be submitted to MedImmune within such **[REDACTED]** period together with remittance of the monies due. With respect to Net Sales of a Product by a Dyax Sublicensee (or its sublicensee) Dyax shall prepare a statement which will include the same information and remit that statement and any monies due within the same period except with regard to any Dyax Sublicensee with which Dyax has a licence agreement relating to the technology of Antibody phage display as of the Commencement Date where the

remittance will be made at Quarterly intervals within **[REDACTED]** of the date royalties are due to Dyax from such existing Dyax Sublicensees.

7.3 All payments shall be made free and clear of and without deduction or deferment in respect of any disputes or claims whatsoever and/or as far as is legally possible in respect of any taxes imposed by or under the authority of any government or public authority. Any tax (other than VAT) which Dyax is required to pay or withhold with respect of the payments to be made to MedImmune hereunder shall be deducted from the amount otherwise due provided that, in regard to any such deduction, Dyax shall give MedImmune such assistance, which shall include the provision of such documentation as may be required by any revenue authority and other revenue services, as may reasonably be necessary to enable MedImmune to claim exemption therefrom or obtain a repayment thereof or a reduction thereof and shall upon request provide such additional documentation from time to time as is needed to confirm the payment of tax. If by law, regulation or fiscal policy of a particular country, a remittance of royalties in the currency stipulated in Clause 7.2 above, as the case may be, is restricted or forbidden, notice thereof will be promptly given to MedImmune, and payment of the royalty shall be made by the deposit thereof in local currency to the credit of MedImmune in a recognized banking institution designated by MedImmune or its Affiliates. When in any country a law or regulation that prohibits both the transmittal and deposit of such payments ceases to be in effect, all royalties or other sums that Dyax would have been under obligation to transmit or deposit but for the prohibition, shall forthwith be deposited or transmitted promptly to the extent allowable.

7.4 Dyax shall keep and shall procure that its Affiliates and Dyax Sublicensees keep true and accurate records and books of account containing all data necessary for the calculation of the amounts payable by it to MedImmune pursuant to this Agreement. Those records and books of account shall be kept for **[REDACTED]** following the end of the Year to which they relate. Upon MedImmune's written request, a firm of accountants appointed by agreement between the Parties or, failing such agreement within **[REDACTED]** of the initiation of discussions between them on this point MedImmune shall have the right to cause an international firm of independent certified public accountants that has not performed auditing or other services for either Party or their Affiliates (or, if applicable, any Dyax Sublicensee with rights to the Product in question) acceptable to Dyax or the Dyax Sublicensee such acceptance not to be unreasonably withheld to inspect such records and books of account. In particular such firm:

7.4.1 shall be given access to and shall be permitted to examine and copy such books and records of Dyax and its Affiliates and Dyax Sublicensees upon **[REDACTED]** notice having been given by MedImmune and at all reasonable times on Business Days for the purpose of certifying that the Net Sales or other relevant sums calculated by Dyax and its Affiliates and Dyax Sublicensees during any Year were reasonably calculated, true and accurate or, if this is not their opinion, certify the Net Sales figure or other relevant sums for such period which in their judgment is true and correct;

7.4.2 prior to any such examination taking place, such firm of accountants shall undertake to Dyax and its Affiliates and Dyax Sublicensees that they shall keep all information and data contained in such books and records, strictly confidential and shall not disclose such information or copies of such books and records to any third person including MedImmune, but shall only use the same for the purpose of calculations which they need to perform in order to issue the certificate to which this Clause envisages;

7.4.3 any such access examination and certification shall occur no more than once per Year and will not go back over records more than **[REDACTED]** old;

7.4.4 Dyax and its Affiliates and Dyax Sublicensees shall make available personnel to answer queries on all books and records required for the purpose of that certification; and

7.4.5 the cost of the accountant shall be the responsibility of Dyax if the certification shows it to have underpaid monies to MedImmune by more than **[REDACTED]** and the responsibility of MedImmune otherwise.

7.5 All payments due to MedImmune under the terms of this Agreement are expressed to be exclusive of value added tax (VAT) howsoever arising. If MedImmune is required to charge VAT on any such payment, MedImmune will notify Dyax. Dyax will then use all commercially reasonable endeavours to obtain a VAT registration as soon as reasonably possible in order to allow it to reclaim any VAT so chargeable. If Dyax does obtain a VAT registration then VAT will be added to any relevant payment at the applicable rate. If having used all commercially reasonable endeavours Dyax is not able to reclaim the VAT (in whole or in part) the parties agree that the amount of any VAT payable will be shared between them equally.

7.6 All payments made to MedImmune under this Agreement shall be made to the bank account of MedImmune as notified by MedImmune to Dyax from time to time.

7.7 If Dyax fails to make any payment to MedImmune hereunder on the due date for payment, without prejudice to any other right or remedy available to MedImmune, it shall be entitled to charge Dyax interest (both before and after judgment) of the amount unpaid at the annual rate of LIBOR (London Interbank Offering Rate) plus **[REDACTED]** calculated on a daily basis until payment in full is made without prejudice to MedImmune's right to receive payment on the due date.

8. **Confidentiality**

8.1 With respect to any confidential information received from the other Party ("**Confidential Information**"), each Party undertakes and agrees to:

(a) only use the Confidential Information for the purposes envisaged under this Agreement and not to use the same for any other purpose whatsoever;

(b) ensure that only those of its officers and employees who are directly concerned with the carrying of this Agreement have access to the Confidential Information on a strictly "need to know" basis and are informed of the secret and confidential nature of it;

(c) keep the Confidential Information secret, confidential, safe and secure and shall not directly or indirectly disclose or permit to be disclosed the same to any Third Party, including any consultants

or other advisors, without the prior written consent of the disclosing Party except to the extent disclosure is necessary in connection with its use as envisaged under this Agreement;

(d) ensure that the Confidential Information will not be covered by any lien or other encumbrance in any way, and

(e) not copy, reproduce or otherwise replicate for any purpose or in any manner whatsoever any documents containing the Confidential Information except to the extent necessary in connection with its use as envisaged under this Agreement.

For the avoidance of doubt, the Parties agree that the identity of the Target, any information related to the Target provided to MedImmune by Dyax, and the Status Report is the Confidential Information of Dyax.

8.2 The obligations referred to in Clause 8.1 above shall not extend to any Confidential Information which:

(a) is or becomes generally available to the public otherwise than be reason of breach by a recipient Party of the provision of Clause 8.1;

(b) is known to the recipient Party and is at its free disposal (having been generated independently by the recipient Party or a Third Party in circumstances where it has not been derived directly or indirectly from the disclosing Party's Confidential Information prior to its receipt from the disclosing Party), provided that evidence of such knowledge is furnished by the recipient Party to the disclosing Party within twenty-eight (28) days of recipient of that Confidential Information;

(c) is subsequently disclosed to the recipient Party without obligations of confidence by a Third Party owing no such obligations to the disclosing Party in respect of that Confidential Information;

(d) is required by law to be disclosed (including as part of any regulatory submission or approval process) and then only when prompt written notice of this requirement has been given to the disclosing Party so that it may, if so advised, seek appropriate relief to prevent such disclosure, provided always that in such circumstances such disclosure shall be only to the extent so required and shall be subject to prior consultation with the disclosing Party with a view to agreeing on the timing and content of such disclosure.

8.3 No public announcement or other disclosures to Third Parties concerning the terms of this Agreement shall be made, whether directly or indirectly, by either Party (except confidential disclosures to professional advisors) without first obtaining the approval of the other Party and agreement upon the nature and text of such announcement or disclosure with the exceptions that:

(a) a Party may disclose those terms which it is required by regulation or law to disclose, provided that it takes advantage of all provisions to keep confidential as many terms of this Agreement as possible; and

(b) the Party desiring to make any such public announcement or other disclosure shall inform the other Party of the proposed announcement or disclosure in reasonably sufficient time prior to public

release, and shall provide the other Party with a written copy thereof in order to allow such Party to comment upon such announcement or disclosure. Each Party agrees that it shall cooperate fully with the other with respect to all disclosures regarding this Agreement to the U.S. Securities Exchange Commission, the UK Stock Exchange and any other comparable body including requests for confidential information or proprietary information of either Party included in any such disclosure.

9. **Indemnification**

9.1 Dyax hereby indemnifies MedImmune and its Affiliates and their directors, officers, employees and agents and their respective successors, heirs and assigns (the "**MedImmune Indemnitees**") against any liability, damage, loss or expense (including attorneys fees and expenses of litigation) incurred by or imposed upon the MedImmune Indemnitees or any one of them in connection with any claims, suits, actions, demands or judgments by or in favour of any Third Party concerning any manufacture, use or sale of any Product by Dyax or any Dyax Sublicensee (or their sublicensee). In addition, each Dyax Sublicensee (or their sublicensee) shall indemnify the MedImmune Indemnitees against any liability, damage, loss or expense (including attorneys fees and expenses of litigation) incurred by or imposed upon the MedImmune Indemnitees or any one of them in connection with any claims, suits, actions, demands or judgments by or in favour of any Third Party concerning any manufacture, use or sale of any Product by such Dyax Sublicensee (or their sublicensee).

9.2 MedImmune shall not be liable to Dyax and Dyax Sublicensee (or its sublicensee) in respect of any liability, loss, damage or expense (including attorneys fees and expenses of litigation) incurred or suffered by Dyax and Dyax Sublicensees (or its sublicensee) in connection with the manufacture, use or sale of any Products by Dyax and Dyax Sublicensees (or its sublicensee).

9.3 MedImmune gives no warranty or representation that the Antibody Phage Display Patents are, or will be, valid or that the exercise of the rights granted under this Agreement will not result in the infringement of patents of Third Parties.

10. **Infringement and Patent Prosecution**

10.1 Dyax shall notify MedImmune promptly of any proceedings or applications for revocation of any of the Antibody Phage Display Patents emanating from a Third Party that comes to its notice or if a Third Party takes or threatens to take any proceedings for infringement of any patents of that Third Party by reason of Dyax's use or operation of the Antibody Phage Display Patents or manufacture, use or sale of the Products. Dyax shall notify MedImmune promptly of any infringement of the Antibody Phage Display Patents by a Third Party which may come to its attention during the term of the Dyax Product Licence, except Dyax shall have no obligation to so notify MedImmune with respect to any infringement by an academic or not-for-profit entity which occurs by reason of such entity carrying out research activities provided such activities are, as far as Dyax is aware, not being carried out with a view to commercialising a product or otherwise for profit.

10.2 MedImmune shall have the sole right and responsibility, at its sole discretion and cost and with reasonable assistance from Dyax, to file, prosecute and maintain the Antibody Phage Display Patents and for the conduct of any lawsuits, claims or proceedings challenging the validity or enforceability thereof including, without limitation, any interference or opposition proceeding relating thereto in all countries. For the avoidance of doubt, Dyax and Dyax Sublicensees will have the right to conduct any proceedings relating to its Product including any proceedings relating to product liability.

11. **Termination**

11.1 Unless terminated under this Clause 11, this Agreement shall commence on the Commencement Date and shall terminate, on a country-by-country and Product-by-Product basis upon the last to expire of claims of an issued and unexpired patent within the Antibody Phage Display Patents (which has not been held permanently revoked, unenforceable or invalid by a decision of a court or other governmental agency of competent jurisdiction unappealed within the time allowed for appeal, and which has not been admitted to be invalid or unenforceable through reissue or disclaimer or otherwise) or (b) the date upon which no payments are due to MedImmune under Clause 6 of this Agreement, whichever occurs later.

11.2 MedImmune shall have the right to terminate this Agreement in the event that:

11.2.1 Dyax or a Dyax Sublicensee (or its sublicensee) has not filed an IND for a Therapeutic Antibody Product, or a 510(k) or IDE for a Diagnostic Antibody Product within [**] after the Commencement Date; provided however, that Dyax shall have the right to extend such period in annual increments by up to two (2) additional years, upon the following terms:

First Annual Extension	**[REDACTED]**
Second Annual Extension	**[REDACTED]**

In order for Dyax to be granted an extension under this Clause 11.2.1, the foregoing amounts must be received by MedImmune prior to the date of expiration. All amounts received by MedImmune under this Clause 11.2.1 will be credited against any milestones and royalties that would otherwise be due to MedImmune under the terms of the Product License; or

11.2.2 Dyax or a Dyax Sublicensee (or its sublicense) directly or indirectly opposes or assists any Third Party to oppose the grant of letters patent or any patent application within the Antibody Phage Display Patents, or disputes or directly or indirectly assists any Third Party to dispute the validity of any patent within the Antibody Phage Display Patents or any of the claims thereof.

11.3 In the event that either Party commits a material breach of any of its material obligations with respect to this Agreement, and such Party fails to remedy that breach within ninety (90) days after receiving written notice thereof from the other Party, that other Party may immediately terminate this Agreement upon written notice to the breaching Party.

11.4 Either Party may terminate this Agreement in its entirety by giving notice in writing to the other Party if any one or more of the following events happens:

(a) the other Party has any distress or execution levied on the major portion of its assets (as determined by its balance sheet in accordance with GAAP) which is not paid out within thirty (30) days of its being levied;

(b) the other Party calls a meeting for the purpose of passing a resolution to wind it up, or such a resolution is passed, or the other Party presents, or has presented, a petition for a winding up order, or presents, or has presented, a petition to appoint an administrator, or has an administrative receiver, or receiver, liquidator or other insolvency practitioner appointed over all or any substantial part of its business, undertaking, property or assets;

(c) the other Party stops or suspends making payments (whether of principal or interest) with respect to substantially all of its debts or announces an intention to do so or the other Party suspends or ceases to carry on its business;

(d) a secured lender to the other Party holding a security interest over the major portion of the tangible assets (as determined by its balance sheet in accordance with GAAP) of such other Party takes any steps to obtain possession of the property on which it has security or otherwise to enforce its security;

(e) the other Party suffers or undergoes any procedure analogous to any of those specified in Clause 11.4(a)-(d) above or any other procedure available in the country in which the other Party is constituted, established or domiciled against or to an insolvent debtor or available to the creditors of such a debtor.

12. **Consequences of Termination**

12.1 Upon termination of this Agreement for any reason whatsoever:

(a) the relationship of the Parties hereunder shall cease save as (and to the extent) expressly provided for in this Clause 12;

(b) any sublicenses granted by Dyax in accordance with the terms of this Agreement will continue in force provided that such sublicensees are not in breach of the relevant sublicense and that each sublicensee agrees to enter into a direct agreement with MedImmune upon the terms of this Agreement;

(c) Dyax shall immediately return or procure to be returned to MedImmune at such place as it directs and at the expense of Dyax (or if MedImmune so requires by notice to Dyax in writing, destroy) all MedImmune Know-How together with all copies of such MedImmune Know-How in its possession or under its control;

(d) The following provisions shall survive expiration or termination of this Agreement: Clauses 7 (in relation to any accrued payment obligations of Dyax prior to termination or expiry), 8, 9, 12, 13 and 15; and

(e) Expiry or termination of this Agreement shall not affect the rights and obligations of the Parties accrued prior to such expiry or termination including any accrued obligation for Dyax to make any payments under Clause 6.

13. **Dispute Resolution**

13.1 Any dispute arising between the Parties relating to, arising out of or in any way connected with this Agreement or any term or condition thereof, or the performance by either Party of its obligations hereunder, whether before or after termination of this Agreement, shall be referred to the Chief Executive Officers of each of the Parties. The Chief Executive Officers shall meet to resolve such deadlock within thirty (30) days of the date that the dispute is referred to them, at a time and place mutually acceptable to them. Any dispute that has not been resolved following good faith negotiations of the Chief Executive Officers for a period of thirty (30) days shall be referred to and finally settled by binding arbitration in accordance with the then current Commercial Arbitration Rules of the American Arbitration Association. There shall be three (3) arbitrators, each Party to designate one arbitrator and the two Party-designated arbitrators to select the third arbitrator. The Party initiating recourse to arbitration shall include in its notice of arbitration its appointment of an arbitrator. The appointing authority, in the event a Party does not or the Parties do not appoint arbitrator(s), shall be the American Arbitration Association in New York, New York. The place of arbitration shall be New York, New York. The language to be used in the arbitration shall be English. Any determination by the arbitration panel shall be final and conclusively binding. Judgment on any arbitration award may be entered in any court having jurisdiction thereof. Each Party shall bear its own costs and expenses

incurred in the arbitration; provided that the arbitration panel may assess the costs and expenses of the prevailing Party, including reasonable attorney's fees, against the non-prevailing Party.

14. **Notices**

14.1 All notices, requests, demands and other communications required or permitted to be given pursuant to this Agreement shall be in writing and shall be deemed to have been duly given upon the date of receipt if delivered by hand, recognized international overnight courier, confirmed facsimile transmission, or registered or certified mail, return receipt requested, postage prepaid to the following addresses or facsimile numbers:

If to Dyax:

Dyax Corp.

300 Technology Square

Cambridge, MA 02139

Attention: Chief Executive Officer

If to MedImmune:

[REDACTED]

Facsimile: (617) 225-2501

Either party may change its designated address and facsimile number by notice to the other party in the manner provided in this Clause.

15. **Governing Law**

15.1 This Agreement shall be governed by and construed in accordance with the laws of the State of New York.

15.2 Save as provided in this Clause, the United Kingdom Legislation entitled the Contracts (Rights of Third Parties) Act 1999 will not apply to this Agreement. No person, other than a MedImmune Indemnitee (as defined in Clause 9.1), who is not a Party to this Agreement (including any employee, officer, agent, representative or subcontractor of either Party) will have the right (whether under the Contracts (Rights of Third Parties) Act 1999 or otherwise) to enforce any term of this Agreement which expressly or by implication confers a benefit on that person without the express prior agreement in writing of the Parties which agreement must refer to this Clause, except that any Dyax Sublicensee shall have the right to enforce the provisions of Clause 12.1(b) of this Agreement and shall be a third party beneficiary for that purpose only.

16. **Specific Performance**

16.1 The parties agree that irreparable damage will occur in the event that the provisions of Clause 8 are not specifically enforced. In the event of a breach or threatened breach of any such provisions, each Party agrees that the other Party shall, in addition to all other remedies, be entitled to temporary or permanent injunction, without showing any actual damage or that monetary damages would not provide an adequate remedy and without the necessity of posting any bond, and/or a decree for specific performance, in accordance with the provisions hereof.

17. **Assignment**

17.1 This Agreement may not be assigned by either party without the prior written consent of the other party, except that either Party may assign the benefit and/or burden of this Agreement to any Affiliate of it or any Third Party, provided that such Affiliate or Third Party undertakes to the other Party to be bound by the terms of this Agreement. This Agreement shall inure to the benefit of and be binding upon the parties and their respective lawful successors and assigns.

18. **Compliance With Law**

18.1 Nothing in this Agreement shall be construed so as to require the commission of any act contrary to law, and wherever there is any conflict between any provision of this Agreement and any statute, law, ordinance, or treaty, the latter shall prevail, but in, such event the affected provisions of the Agreement shall be conformed and limited only to the extent necessary to bring it within the applicable legal requirements.

19. **Amendment and Waiver**

19.1 This Agreement may be amended, supplemented, or otherwise modified only by means of a written instrument signed by both parties. Any waiver of any rights or failure to act in a specific instance shall relate only to such instance and shall not be construed as an agreement to waive any rights or fail to act in any other instance, whether or not similar.

20. **Severability**

20.1 In the event that any provision of this Agreement shall, for any reason, be held to be invalid or unenforceable in any respect, such invalidity or unenforceability shall not affect any other provision hereof and the parties shall negotiate in good faith to modify the Agreement to preserve (to the extent possible) their original intent.

21. **Entire Agreement**

21.1 This Agreement and the Amendment Agreement constitute the entire agreement between the parties with respect to the subject matter hereof and supersede all prior agreements or understandings between the parties relating to the subject matter hereof.

IN WITNESS OF THE ABOVE the Parties have signed this Agreement on the date written at the head of this Agreement.

Schedule 1

Antibody Phage Display Patents

[**].

Schedule 2

MedImmune Know-How

MedImmune [**]

MedImmune [**]

MedImmune may supplement the above with any revisions which it may make to the [**] or with any new [**] at its discretion from time to time (in each case accompanied by notice to Dyax under the Agreement) or with such additional know-how as the Parties may agree.

Schedule 3

Identification of Target:	**[**]**
GenBank accession number:	**[**]**
Swiss Prot number:	**[**]**

Confidential Materials omitted and filed separately with the
Securities and Exchange Commission. Asterisks denote omissions.

AMENDED AND RESTATED COLLABORATION AGREEMENT

This AMENDED AND RESTATED COLLABORATION AGREEMENT ("Agreement"), effective as of January 24, 2007 (the "Effective Date"), is between **DYAX CORP.**, a Delaware corporation, with offices at 300 Technology Square, Cambridge, Massachusetts 02139, U.S.A. ("Dyax"), and **MERRIMACK PHARMACEUTICALS, INC.**, a Massachusetts corporation with its principal place of business located at One Kendall Square, Building 700, 2nd Floor, Cambridge, MA 02139, U.S.A. ("Merrimack").

WHEREAS, Dyax possesses intellectual property and know-how related to, among other things, the discovery of antibodies having novel binding properties using phage display;

WHEREAS, Merrimack is a biotechnology company focused on developing therapeutics in the fields of autoimmune disease and cancer;

WHEREAS, Dyax and Merrimack previously entered into a Collaboration Agreement, dated effective as of December 6, 2005 (the "Original Agreement"), under which Dyax agreed to perform research using Dyax Libraries (as hereinafter defined) to identify Dyax Antibodies (as hereinafter defined) to targets to be provided by Merrimack so that Merrimack may evaluate the utility of using and use such antibodies as therapeutics and/or diagnostics; and

WHEREAS, Dyax and Merrimack wish to expand the scope of the research activities to be performed by Dyax and amend certain other terms under the Original Agreement; and

WHEREAS, to accomplish the foregoing, the Parties have agreed to amend and restate the Original Agreement as set forth herein.

NOW, THEREFORE, in consideration of the mutual covenants set forth in this Agreement, the Parties hereby agree that, from and after the Effective Date hereof, the Original Agreement is hereby amended and restated as follows:

ARTICLE I
DEFINITIONS

1.1 "Affiliate" means, with respect to either Party, a corporation or other legal entity that controls, is controlled by, or is under common control with such Party. For purposes of this definition, "control" means the ownership, directly or indirectly, of more than fifty percent (50%) of the outstanding equity securities of a corporation which are entitled to vote in the election of directors or a more than fifty percent (50%) interest in the net assets or profits of an entity which is not a corporation.

1.2 "Antibody" means a molecule or a gene encoding such a molecule comprising or containing one or more immunoglobulin variable domains or parts of such domains or any existing or future fragments, variants, modifications or derivatives thereof.

1.3 "CAT Agreement" means that certain Amendment Agreement dated January 3, 2003 by and between Cambridge Antibody Technology Limited ("CAT") and Dyax, as amended

by the Second Amendment Agreement between Dyax and CAT dated September 18, 2003. Redacted copies of these agreements were provided to Merrimack prior to the Effective Date.

1.4 "CAT Gatekeeping Procedure" means the procedure set out in Appendix B hereto which CAT shall carry out in respect of a Nominated Target prior to the grant of the CAT Product License.

1.5 "CAT Patent Rights" means the patents and patent applications listed in Appendix C hereto and any patents issuing from such patent applications, together with any divisionals, registrations, confirmations, reissues, extensions, renewals, continuations, continuations-in-part, revalidations, additions, substitutions, renewals or supplementary protection certificates thereof throughout the world and any other patent applications or patents licensed to Dyax under the CAT Agreement or the CAT Product License.

1.6 "CAT Product License" means a license from CAT which is required, under the terms of the CAT Agreement, to be granted ([**] of a Therapeutic Antibody Product or [**] for any Diagnostic Antibody Product) in order to commercialize Dyax Antibodies to any Target, as described in more detail in Section 3.2. The form of CAT Product License is attached hereto as Appendix D.

1.7 "CAT Valid Claim" means a claim of an issued and unexpired patent included within the CAT Patent Rights which has been licensed to CAT by the Medical Research Council which has not been held permanently revoked, unenforceable or invalid by a decision of a court or other governmental agency of competent jurisdiction unappealed within the time allowed for appeal, and which has not been admitted to be invalid or unenforceable through reissue or disclaimer or otherwise.

1.8 "Commercial Field" means all human therapeutic and diagnostic uses, excluding (i) Research Products, (ii) Separations Applications, (iii) therapeutic products designed to localize an additional non-antibody, active molecule to a Target for therapeutic purposes (e.g. radio-labeled therapeutics, antibody-toxin conjugates), and (iv) with respect to Antibodies directed against any Third Party In Vivo Target, *in vivo* diagnostic uses. For the avoidance of doubt, item (iii) in the foregoing sentence is not intended to exclude Products as a result of the incorporation of Poly-Specific Antibodies within such Products.

1.9 "Commercial License" has the meaning set forth in Section 3.1(b) hereof.

1.10 "Confidential Information" means all information, inventions, data and know-how disclosed to either party by the other party relating to any technology, use, process, method, trade secret, document, technical report, specification, diagram, research project, development program, clinical data, test result, or non-publicly available agreement or document, whether in written, oral, graphic, electronic or any other media or form.

1.11 "Diagnostic Antibody Product" means any preparation in the form of a device, composition, compound, kit or service with utility in the diagnosis, prognosis, prediction or management or susceptibility to treatment of a disease or disorder which contains, comprises or the process of development or manufacture of which utilizes a Dyax Antibody. For the avoidance of doubt, the parties acknowledge and agree that [**].

1.12 "Display Library" means a collection of at least 1,000 genetically different organisms that each contain genetic information encoding a different fusion protein, wherein such collection was created for the purpose of displaying such fusion protein on the outer surface of such organisms.

1.13 "Dispose" means to transfer, assign, lease or in any other fashion dispose of control, ownership or possession, but shall not mean to license or sell. "Disposition" shall have the correlative meaning.

1.14 "Dyax Antibody" means any Antibody that is delivered by Dyax to Merrimack in connection with the Research Program and which was identified, generated, developed, produced, optimized, or obtained by Dyax from a Dyax Library, and any variant, modification or derivative of such Antibody, including a Poly-Specific Antibody, whether synthesized by Merrimack or Dyax.

1.15 "Dyax Antibody Information" means any data, know-how or other information relating, concerning or pertaining to a specific Dyax Antibody, including, [**] or [**] or [**] or [**], or[**] or [**].

1.16 "Dyax Antibody IP" means any patent(s) and/or patent application(s) relating to one or more Dyax Antibodies.

1.17 "Dyax Libraries" means Dyax's proprietary phagemid-based Fab Display Libraries and phage-based Fab Display Libraries.

1.18 "Dyax Patent Rights" means the patents and patent applications set forth in Appendix E [**] of the [**] and [**], together with any reissues, re-examinations, renewals, and extensions thereof, and all continuations, continuations-in-part and divisionals of the applications throughout the world.

1.19 "Dyax Research Know-How" means any unpatented know-how, technical or other information generated or utilized by Dyax during the conduct of the Research Program that [**] to the [**] in the [**] of the [**], and/or [**] of the [**] that is [**] by the [**].

1.20 "Dyax Research Materials" means any materials, including but not limited to Antibody coding expression vectors (but excluding the Dyax Antibodies) provided to Merrimack by Dyax in connection with the Research Program.

1.21 "First Commercial Sale" means the first commercial sale of any Product by Merrimack, its Affiliates or sublicensees in any country after grant of a Marketing Authorization.

1.22 "FTE" means the equivalent of the work time of a full-time scientist or a full-time project team leader over a twelve-month period (including normal vacations, sick days and holidays). In the case of less than a full-time person, the portion of an FTE year devoted by such person to the Research Program shall be determined by dividing the number of days during any twelve-month period devoted by such person to the Research Program by the total number of working days of such person's full-time scientist during such twelve-month period. One person cannot be counted as more than one FTE for a given year.

1.23 "FTE Rate" means $[**] per annum per FTE (or $[**] per hour based on an FTE year of [**] hours). The FTE Rate includes all salary, employee benefits, materials and all other expenses including support staff and overhead for or associated with Dyax scientists performing activities in connection with the Research Program.

1.24 "Indication" means a new and distinct disease category (for example, cancer versus inflammation) and does not mean a different type or subpopulation within the same primary disease (for example, colon cancer versus breast cancer).

1.25 "Major Market" any one of the following: (i) the United States of America, (ii) any country in Europe which is subject to the Marketing Authorization procedure of the European Medicines Evaluation Agency, or (iii) Japan.

1.26 "Marketing Authorization" means any approval (including all applicable pricing and governmental reimbursement approvals) required from the relevant Regulatory Authority to market and sell a Product in a particular country.

1.27 "Merrimack Materials" means the Merrimack Targets and other materials that are delivered to Dyax by Merrimack pursuant to the Research Program.

1.28 "Merrimack Targets" means Targets that are delivered to Dyax by Merrimack and accepted by Dyax for inclusion in the Research Program as provided under Section 2.4(a). For the avoidance of doubt, the identity of Merrimack Targets shall constitute Confidential Information of Merrimack.

1.29 "NDA" means New Drug Application as defined in 21 CFR 314 or other comparable regulation imposed by the U.S. Food and Drug Administration, or its foreign counterpart.

1.30 "Net Sales" means, with respect to any Product sold by Merrimack, its Affiliates or sublicensees, the price invoiced by that party to the relevant purchaser (or in the case of a sale or other disposal otherwise than at arm's length, the price which would have been invoiced in a bona fide arm's length contract or sale) but [**] and[**] or [**], and [**] or [**] and [**]in the [**] to the [**]. In the event the Product is sold as part of a Combination Product (as defined below), the Net Sales from the Combination Product, for the purposes of determining royalty payments, shall be determined by [**] of the [**] the [**], by[**] is the [**] of the [**] and [**] in the [**] the [**] and the [**] in the [**] in which [**]. In the[**] the [**] and [**] in the [**] for the [**] shall be [**] of the [**] is the [**] of the [**] is the [**] of [**] in the [**]. As used above, the term "Combination Product" means any pharmaceutical or biologic product which contains a Product and other active compounds and/or active ingredients.

1.31 "Nominated Target" has the meaning set forth in Section 3.2(a)(iii) hereof.

1.32 "Party" means Dyax or Merrimack, and "Parties" means Dyax and Merrimack.

1.33 "Patent Rights" means patent applications or patents, author certificates, inventor certificates, utility certificates, improvement patents, and models and certificates of addition, and all foreign counterparts of them and includes divisionals, renewals, continuations, continuations-

in-part, extensions, reissues, substitutions, confirmations, registrations, revalidations, or additions of or to them as well as any supplementary protection certificate or any other post patent expiration extension of patent protection in respect to them.

1.34 "Phase I Clinical Trial" means a human clinical trial in any country that is intended to initially evaluate the safety of an investigational Product in volunteer subjects or patients that would satisfy the requirements of 21 CFR 312.21(a), or other comparable regulation imposed by the U.S. Food and Drug Administration, or its foreign counterpart.

1.35 "Phase III Clinical Trial" means a pivotal human clinical trial in any country the results of which could be used to establish safety and efficacy of a Product as a basis for a marketing application that would satisfy the requirements of 21 CFR 312.21(c) or other comparable regulation imposed by the U.S. Food and Drug Administration, or its foreign counterpart.

1.36 "Poly-Specific Antibody" means a Dyax Antibody that is directed to more than one Nominated Target as described in Section 3.2(e).

1.37 "Product" means any Diagnostic Antibody Product and/or Therapeutic Antibody Product.

1.38 "Quarter" means each period of three (3) months ending on March 31, June 30, September 30, or December 31 and "Quarterly" shall be construed accordingly.

1.39 "Regulatory Authority" means the United States Food and Drug Administration, or any national or local agency, authority, department, inspectorate, minister, ministry official, parliament or public or statutory person (whether autonomous or not) of any government of any country having jurisdiction over any of the activities contemplated by this Agreement or the Parties, or any successor bodies thereto.

1.40 "Research Campaign" means one of [**] separate funded research campaigns (referred to herein as "Campaign I", [**]"), each with its own Research Plan, designed to result in the identification of antibodies against each Merrimack Target. Each Research Campaign will include [**] Merrimack Targets.

1.41 "Research Field" means use in *in vitro* and *in vivo* studies (excluding any studies in humans) in connection with Merrimack's internal discovery and development programs, and not for any other purpose.

1.42 "Research Plan" means the written description of work to be performed by Dyax for each Research Campaign describing the activities to be conducted by Dyax and Merrimack in connection with the discovery, development and validation of Antibodies against Merrimack Targets. The Research Plan for Campaign I is attached hereto as Appendix A. The Research Plan for Campaigns [**] will be drafted, reviewed and approved prior to the commencement of each such Research Campaign.

1.43 "Research Products" means (i) any kit, vial or array (protein chip) containing one or more Antibodies intended for sale to an end user solely for research purposes and (ii) any

Antibodies sold to a Third Party for incorporation into any kit, vial or array (protein chip) that are intended for sale to an end user for research purposes. Research Products shall exclude Therapeutic Antibody Products and Diagnostic Products.

1.44 "Research Program" means the research activities undertaken by Dyax and Merrimack in accordance with the Research Plan for each Research Campaign and the terms of this Agreement.

1.45 "Research Term" has the meaning set forth in Section 9.1 hereof.

1.46 "Research Steering Committee" has the meaning set forth in Section 2.3(a) hereof.

1.47 "Research and Development" means, for the purposes of the XOMA Covenant and the restrictions applicable thereto, the identification, selection, isolation, purification, characterization, study and/or testing of an Antibody for any purpose, including, without limitation, the discovery and development of human therapeutics. Included within the definition of "Research and Development" shall be all [**]. "Research and Development" shall not include [**].

1.48 [**].

1.49 [**].

1.50 [**].

1.51 "Selected Target" has the meaning set forth in Section 3.2(d) hereof.

1.52 "Separations Applications" means the use of Antibodies for the development and manufacture of affinity chromatography purification media for use in the separation and purification of pharmaceuticals.

1.53 "Target" means an antigen and/or DNA as identified by a full length protein sequence that it encodes.

1.54 "Target Acceptance Notification" has the meaning set forth in Section 3.2(b)(iii) hereof.

1.55 "Therapeutic Antibody Product" means any preparation which is intended for use in the Commercial Field which contains, comprises, or the process of development or manufacture of which utilizes a Dyax Antibody. For the avoidance of doubt, the parties acknowledge and agree that term "Therapeutic Antibody Product" shall not include [**].

1.56 "Third Party" means any entity other than Dyax or Merrimack or their respective Affiliates.

1.57 "Third Party Phage Display Agreements" means the CAT Agreement and the XOMA Agreement.

1.58 "Third Party In Vivo Target" means any Target to which Dyax has granted an undisclosed Third Party exclusive rights in the field of *in vivo* diagnostics pursuant to an agreement with such Third Party that was entered into prior to the date hereof. To the extent that the agreement with such undisclosed Third Party terminates or is amended or modified in any way that would allow Dyax to expand the Commercial Field to include rights to [**] in the field of *in vivo* diagnostics, Dyax will promptly notify Merrimack and grant such rights to Merrimack.

1.59 "Transferred Materials" means, for the purposes of the XOMA Covenant and the restrictions applicable thereto, the Dyax Libraries, any Dyax Antibodies, Dyax Antibody Information or the product of the practice of any method that in each of the foregoing cases is within the scope of the XOMA Patent Rights.

1.60 "Valid Claim" means (a) a claim of an issued and unexpired patent included in the Dyax Patent Rights, CAT Patent Rights or XOMA Patent Rights, as the case may be, which has not been held invalid in a final decision of a court of competent jurisdiction from which no appeal may be taken, and which has not been disclaimed or admitted to be invalid or unenforceable through reissue or otherwise, or (b) a claim of a pending patent application within the XOMA Patent Rights.

1.61 "XOMA Agreement" means that certain License Agreement dated October 16, 2002 by and between XOMA Ireland Limited ("XOMA") and Dyax, a redacted copy of which has been provided by Dyax to Merrimack on or prior to the Effective Date.

1.62 "XOMA Covenant" has the meaning set forth in Section 3.1(c) hereof.

1.63 "XOMA Know-How" means unpatented or unpatentable technical information, including ideas, concepts, inventions, discoveries, data, designs, formulas, specifications, procedures for experiments and tests and other protocols, results of experimentation and testing, fermentation and purification techniques, and assay protocols, whether now existing or obtained in the future, owned by XOMA which XOMA has the right to license or sublicense and which may be necessary for the practice of the XOMA Patent Rights or which would be misappropriated by the activities of Merrimack contemplated hereunder but for this Agreement. All XOMA Know-How shall be confidential information of XOMA.

1.64 "XOMA Patent Rights" means the patent applications and patents set forth in Appendix F attached hereto and incorporated herein, and, solely to the extent any Valid Claim would cover or be included in the license grants provided for herein, all divisionals, continuations, continuations-in-part, applications claiming priority thereto, and substitutions thereof; all foreign patent applications corresponding to the preceding applications; all U.S. and foreign patents issuing on any of the preceding applications, including extensions, reissues and re-examinations; and any other patent rights owned by XOMA which XOMA has the right to license or sublicense and which would be infringed by the activities contemplated hereunder but for this Agreement. XOMA Patent Rights shall also include (i) any improvements of the foregoing that are owned or controlled by XOMA and (ii) any patents or patent applications, whether now existing or obtained in the future, owned or controlled by XOMA containing a claim that is dominating over the foregoing patent rights (i.e., is necessarily infringed by the practicing of a claim in one of the foregoing applications).

The above definitions are intended to encompass the defined terms in both the singular and plural forms.

ARTICLE II
RESEARCH PROGRAM

2.1 Goal of Research Program. The initial goal of the Research Program is to identify Dyax Antibodies that bind to the Merrimack Targets provided to Dyax under the terms of the Research Plan for each Research Campaign. Each Party acknowledges that the outcome of the Research Program cannot be predicted and each Party agrees to cooperate in good faith with the other to modify the Research Plan for each Research Campaign as may be reasonably required to accomplish the goal of the Research Program.

2.2 Research Campaigns; Research Plans. The Research Program will be divided into [**] separate Research Campaigns (referred to herein as "Campaign I", [**]). The Research Plan for each Research Campaign will be designed to result in the identification of antibodies against [**] Merrimack

Targets. Unless otherwise agreed in writing, each of Research Campaigns [**] shall be initiated within [**] years after the Effective Date ([**] was initiated and completed prior to the Effective Date). The Research Plan for Campaign I is attached hereto as Appendix A. The parties acknowledge and agree that, as of the date of this Amended and Restated Collaboration Agreement, the research activities contemplated under the Research Plan for [**] have been completed. The Research Plan for Campaigns [**] will be drafted, reviewed and approved prior to the commencement of each such Research Campaign. During the Research Term, the Research Plan for each Research Campaign may be amended or revised, as appropriate, by the Research Steering Committee.

2.3 Research Steering Committee.

(a) Structure and Function. A committee shall be established to manage the Research Program (the "Research Steering Committee"). The Research Steering Committee shall be composed of three (3) representatives appointed by Dyax and three (3) representatives appointed by Merrimack. The Research Steering Committee shall direct and administer the Research Program and shall perform the following functions: (a) oversee and monitor the activities contemplated by the Research Plan for each Research Campaign (provided that either Party may enforce the provisions of this Agreement irrespective of such oversight); (b) review and pre-approve external expenditures; (c) review the written progress reports of the parties and maintain frequent communication with the parties regarding the status of the Research Program; (d) amend or revise any Research Plan as necessitated by the outcome of the work conducted under such Research Plan; and (e) identify and select Dyax Antibodies that bind to the Merrimack Targets provided to Dyax under the terms of any Research Plan [**].

(b) Formation and Meetings. As soon as practical after the Effective Date, each Party shall identify to the other, its representatives on the Research Steering Committee. The Research Steering Committee shall meet as needed during each Research Campaign. Such meetings shall be at times and places or in such form (e.g., telephone or videoconference) as the members of the Research Steering Committee shall agree. A Party may change one or more of its

representatives to the Research Steering Committee at any time upon notification to the other Party. A quorum for a meeting requires at least two representatives from each Party.

(c) Attendance and Voting. A member of the Research Steering Committee may be represented at any meeting by another member of the Research Steering Committee from the same Party or by a deputy that will be entitled to vote for the absent member. All approvals, determinations and other actions must be made by unanimous consent of the members of the Research Steering Committee or their deputies present at the relevant Research Steering Committee meeting. In the event that the Research Steering Committee is unable to reach consensus with respect to any material matter and becomes deadlocked, the parties will seek to resolve the matter through their chief executive officers. Representatives of either Party who are not members of the Research Steering Committee or their deputies may attend meetings of the Research Steering Committee as agreed to by the representative members of the other Party.

(d) Record Keeping and Communications. At or before the commencement of each meeting, the Research Steering Committee shall appoint one of its members to act as secretary for such meeting or shall arrange for a person to be present in such capacity. The Research Steering Committee shall keep accurate minutes of its meetings and shall record all proposed decisions and all actions recommended or taken. Copies of the minutes shall be provided to each member of the Research Steering Committee after each meeting and shall be approved, if appropriate, at the next meeting. In addition, the Research Steering Committee will arrange with the appropriate representatives of each Party for the preparation of written progress reports on the status of the Research Program at least [**] and the members of the Research Steering Committee will generally maintain close and frequent communication among themselves and with the parties. All records of the Research Steering Committee shall at all times be available to both parties.

2.4 Obligations of Parties During the Research Term.

(a) Target Identification and Approval. Prior to commencing activities under any Research Campaign, Merrimack will first provide Dyax with a written notice identifying each Target that Merrimack wishes to include in such Research Campaign as a Target against which Dyax Antibodies would be directed (which must be accompanied by a GenBank® accession number, if available, or similar information which uniquely identifies each such Target). Dyax shall then have [**] business days to notify Merrimack (i) whether or not it will be able to perform research to identify Dyax Antibodies to such Target on a nonexclusive basis in accordance with the terms set forth in Section 2.4(d) below, and (ii) if any such Target is a Third Party In Vivo Target. If Dyax rejects any Target submitted by Merrimack, Merrimack shall have the option to identify a new Target for inclusion in such Research Campaign.

(b) Merrimack Responsibilities. For each Merrimack Target for which Dyax has agreed to perform research under Section 2.4(a), Merrimack agrees to provide to Dyax a reasonable quantity of such Merrimack Targets and other Merrimack Materials as set forth in each Research Plan prior to the commencement of each Research Campaign. Dyax shall use such Merrimack Targets and other Merrimack Materials solely in accordance with the applicable Research Plan and nothing in this Agreement shall be construed as a grant by Merrimack to Dyax of any rights to any Merrimack Target after the term of this Agreement.

(c) Dyax Responsibilities. For each Merrimack Target for which Dyax has agreed to perform research under Section 2.4(a), Dyax agrees to [**] for each Research Campaign, and to [**]. Dyax shall deliver the Dyax Antibodies, Dyax Antibody Information, Dyax Research Materials [**]. Dyax's activities under each Research Plan will be deemed complete [**]. Notwithstanding the foregoing, Merrimack acknowledges and agrees that the results of each Research Plan cannot be predicted and that Dyax's sole obligation is to perform the work set forth in such Research Plan and to deliver the Deliverables to Merrimack that are contemplated by such Research Plan based on the outcome of Dyax's activities thereunder. During the course of the work under any Research Plan, Dyax's representatives primarily responsible for oversight of Dyax's activities under such Research Plan shall consult with representatives of Merrimack [**], to respond to questions, facilitate the exchange of appropriate information and review the progress of such Research Plan.

(d) Other Research and Licensing Activities. Without limiting Dyax' confidentiality obligations hereunder, Merrimack acknowledges and agrees that:

(i) Dyax has previously licensed Dyax Libraries to Third Parties and may continue to do so in the future, and that such Third Parties may be using one or more Dyax Libraries to identify Antibodies to Merrimack Targets;

(ii) Dyax may have previously conducted research on behalf of Third Parties to identify and/or develop, or cooperate or participate to identify and/or develop, Antibodies to Merrimack Targets and may continue to do so during the Research Term and in the future; and

(iii) Dyax will not deliver to Merrimack any Antibodies that are identified by Dyax as a result of the Research Program if such Antibodies were previously delivered to Third Parties in connection with research activities conducted on behalf of Third Parties.

ARTICLE III
GRANT OF RIGHTS TO MERRIMACK

3.1 Dyax Grants.

(a) Research License. Subject to the terms and conditions of this Agreement, including without limitation, the restrictions set forth in Section 3.2 and the payment obligations set forth in Article 4, Dyax hereby grants to Merrimack and its Affiliates a world-wide, non-exclusive, royalty-free, non-transferable license, without the right to sublicense, under the Dyax Patent Rights, Dyax Research Know-How, Dyax Antibody Information, Dyax Antibody IP, and CAT Patent Rights to use Dyax Research Materials and to research, develop and make Dyax Antibodies, solely in the Research Field.

(b) Commercial License. During the term of this Agreement and prior to the commencement of the first Phase I Clinical Trial of a Therapeutic Antibody Product or prior to the first filing for Marketing Authorization for any Diagnostic Antibody Product, provided that

Merrimack is not then in breach of any material terms or conditions hereof, Merrimack shall have the option to obtain a worldwide, non-exclusive license, to use Dyax Antibodies to develop, make, have made, use, sell, offer for sale, import and export Therapeutic Antibody Products and Diagnostic Antibody Products to the applicable Merrimack Target in the Commercial Field (the "Commercial License") on the following terms:

(i) Merrimack shall have no rights to obtain a Commercial License unless, prior to the commencement of the first Phase I Clinical Trial of a Therapeutic Antibody Product or prior to the first filing for Marketing Authorization for any Diagnostic Antibody Product, Merrimack obtains a sublicense to a CAT Product License with respect to the applicable Merrimack Target(s) as contemplated in Section 3.2(a) hereof;

(ii) Once Merrimack has obtained a sublicense to a CAT Product License to the applicable Merrimack Target(s), Dyax shall and hereby does grant to Merrimack a Commercial License to Dyax Antibodies and Products directed to the applicable Merrimack Target(s), including a license to the applicable Dyax Antibody Information and Dyax Antibody IP;

(iii) the Commercial License granted to Merrimack under Section 3.1(b) shall be subject to the terms and conditions of this Agreement, including without limitation, the restrictions set forth in Sections 3.2, and 3.3 and the payment obligations set forth in Article 4; and

(iv) subject to the terms and conditions of any applicable CAT Product License, Merrimack shall have the right to sublicense the Commercial License granted to Merrimack under this Section 3.1(b) to allow Third Parties to develop, make, have made, use, sell, offer for sale, import and export Therapeutic Antibody Products and Diagnostic Antibody Products directed to the applicable Merrimack Target(s) in the Commercial Field.

(c) XOMA Covenant. Subject to the terms and conditions of this Agreement, including the provisions of Section 3.3 below, Dyax represents to Merrimack that, pursuant to a covenant running from XOMA to Dyax (the "XOMA Covenant"), XOMA has agreed that it shall not initiate or permit any Third Party over whom it has control to initiate or assist in any way in the initiation or prosecution of any action asserting a claim of infringement under the XOMA Patent Rights or misappropriation of the XOMA Know-How to the extent reasonably necessary to allow the parties to use the Dyax Libraries and Dyax Library Materials to conduct Research and Development activities under the terms of this Agreement. The XOMA Covenant extends to [**]. The XOMA Covenant expressly does not extend to use of the XOMA Patent Rights to make or the means or methods to make any amount of Dyax Antibodies other than quantities reasonably required for Research and Development purposes.

3.2 Restrictions on the CAT Patent Rights. [**], the parties acknowledge and agree that the licenses granted to Merrimack under the CAT Patent Rights pursuant to Sections 3.1(a) and 3.1(b) above are subject to the following provisions:

(a) CAT Product License

(i) [**], in the event that Merrimack wishes to develop and commercialize any Product with respect to [**], then [**] in relation to any Therapeutic Antibody Product or [**] for any Diagnostic Antibody Product, Merrimack must first obtain a sublicense under a CAT Product License with respect to such Targets.

(ii) [**] of this Section 3.2. [**] and [**] or [**] with this Section 3.2.

(iii) In order [**] a CAT Product License [**] with respect to a Target, Merrimack must [**] that Dyax [**] through the CAT Gatekeeping Procedure described in Section 3.2(b).

(b) CAT Gatekeeping.

(i) Any request by Merrimack that Dyax submit a Nominated Target through the CAT Gatekeeping Procedure shall be in writing and must identify the Nominated Target against which Dyax Antibodies are directed [**].

(ii) If CAT notifies Dyax under the CAT Agreement that the Nominated Target has not passed the CAT Gatekeeping Procedure, then Dyax shall promptly notify Merrimack in writing that Dyax will not be granted a CAT Product License, and Merrimack shall have no rights pursuant to Section 3.1(b) with respect to such Nominated Target; provided, however, [**].

(iii) Upon receipt of a request by Merrimack under Section 3.2(b)(i), Dyax shall promptly [**] request that CAT subject the Nominated Target to CAT's Gatekeeping Procedure (as described in Appendix B hereto) in accordance with the CAT Agreement. If CAT determines that the Nominated Target has passed the CAT Gatekeeping Procedure, [**], CAT is obligated to notify Dyax (the "Target Acceptance Notification") that a CAT Product License is available for such Target [**].

(c) [**]. In certain circumstances described below, Dyax may allow Merrimack [**]. Pursuant to the terms of the CAT Agreement, Dyax [**] the CAT Gatekeeping Procedure [**]. For the purposes of this Section 3.2(c), [**] *provided that*, if, at any time [**], Dyax will then so notify Merrimack. Merrimack will then have [**] from the date of such notice to decide whether or not it wishes to take a CAT Product License for that Nominated Target. If Merrimack notifies Dyax within that period that it does not wish to take such a CAT Product

License or fails to notify Dyax that it does wish to take such a CAT Product License, then [**] CAT may grant an exclusive license to a Third Party in respect of such Nominated Target.

Prior to [**], Merrimack shall have the [**]. In addition [**], both [**], Merrimack may [**] to [**] of a [**] will be [**], and [**] to [**] to [**] of[**] will be [**], at the [**].

[**] to the [**] of the [**] that [**] will be [**] of the [**] for the [**] be so [**].

(d) Sublicense of CAT Product License. Upon receipt of a Target Acceptance Notification, [**], Merrimack may, by written notice, request that Dyax secure a CAT Product License for the Nominated Target (which shall thereafter be referred to as a "Selected Target"). In such event, Dyax [**] a CAT Product License with respect to such Selected Target, and to deliver to Merrimack a fully executed redacted copy thereof. [**], and subject to the prior payment by Merrimack to Dyax of the Product License Fee referred to in Section 4.3, Dyax and Merrimack shall enter into a written sublicense agreement, the form of which is attached hereto as Appendix H, under which Dyax shall grant to Merrimack a worldwide, non-exclusive sublicense under the rights granted to Dyax under Clause 2 of the CAT Product License to develop, make, have made, use, sell, offer for sale, import and export Products against such Selected Target in the Commercial Field. [**] after the [**] to the [**] with the [**] the [**] is [**] to [**] under [**].

(e) Poly-Specific Antibodies. Notwithstanding anything to the contrary contained in this Section 3.2 or in the form of CAT Product License attached hereto as Appendix D, in the case where a Dyax Antibody is directed to multiple Targets, then each such Target shall be considered a Nominated Target and [**]. If CAT notifies Dyax that each [**] to which such Poly-Specific Antibody is directed has [**] then, pursuant to an amendment to the CAT Agreement, Dyax shall have the right to obtain a single CAT Product License that will [**] to which Poly-Specific Antibodies bind; provided however, that such CAT Product License shall be limited so as to allow Merrimack to exploit only Products that comprise or contain Poly-Specific Antibodies directed against all such [**]. For the avoidance of doubt, Dyax agrees that the [**] applicable to the development and commercialization of a Poly-Specific Antibody under such a CAT Product License [**], as described in Sections 4.2 through 4.8. Except as expressly provided for herein, the form of the CAT Product License that would be applicable to any such Poly-Specific Antibody would be negotiated between Dyax and CAT.

(f) Effect of Termination of CAT Agreement. Pursuant to the terms of the CAT Agreement, upon termination of the CAT Agreement, Dyax represents and warrants that (i) [**] and the [**], and (ii) any sublicense granted by Dyax to Merrimack under a CAT Product License pursuant to this Agreement will continue in force provided [**]. The Parties acknowledge that Merrimack derives independent and significant value from the agreements set forth in the CAT Agreement and may rely thereon and to that extent only shall have the right to enforce the provisions of Section 3.2(f)(ii) above and be a Third Party beneficiary for that purpose only.

(g) Merrimack Acknowledgement. As required by the CAT Agreement, Merrimack hereby acknowledges and agrees that Dyax must request, and be granted a CAT Product License, in relation to a Therapeutic Antibody Product prior to Dyax or Merrimack's commencement of the [**] in relation to a Therapeutic Antibody Products, or in relation to a Diagnostic Antibody Product prior to Dyax or Merrimack's [**] on the relevant Dyax Antibody.

(h) Third Party Beneficiary Right. As required by the CAT Agreement, Merrimack agrees that CAT shall be a Third Party beneficiary of the sublicense under the CAT Product License and CAT shall have the right to enforce (including claim damages as a result of any breach) of such sublicense. If at any time CAT does have to enforce its rights under such sublicense Dyax will, if requested by CAT, supply to CAT a copy of this Agreement as soon as possible.

3.3 XOMA Covenant. As required by the XOMA Agreement, the Parties acknowledge and agree that the XOMA Covenant is subject to the following provisions:

(a) Merrimack will abide by each of the limitations, restrictions and other obligations applicable to Merrimack provided for in the XOMA Agreement including, without limitation, the restrictions on use of Transferred Materials for purposes other than Research and Development;

(b) Merrimack covenants not to use the Transferred Materials for any purpose other than for Research and Development purposes;

(c) Merrimack agrees that the "first sale" doctrine does not apply to any Disposition of Transferred Materials;

(d) Merrimack shall Dispose of Transferred Materials only to a Third Party who otherwise meets the definition of a Dyax Collaborator under the XOMA Agreement and who executes a written agreement in which its undertakes all of the obligations set forth herein;

(e) XOMA shall be an intended Third Party beneficiary with respect to the foregoing provisions of Section 3.3(a) through (d);

(f) If Merrimack or any person or entity controlled by Merrimack contests the validity or enforceability of any of the XOMA Patent Rights hereunder, XOMA shall have the right to terminate (or cause Dyax to terminate) all of the rights hereby granted to Merrimack under the XOMA Patent Rights;

(g) Merrimack acknowledges and agrees that it has received from Dyax, and is subject to the relevant provisions of, the following documents: (i) a redacted copy of the XOMA Agreement containing all of the limitation, restrictions and other obligations provided therein with respect to the XOMA Patent Rights; and (ii) the Form of Notice attached hereto as Appendix G and incorporated herein;

(h) Merrimack acknowledges and agrees that nothing in this Agreement shall be construed as a release or waiver of past, present or future infringement of the XOMA Patent Rights by Merrimack acting outside the scope of this Agreement nor as a release from Dyax

from any claim of infringement of the XOMA Patent Rights nor as any right to release any Third Party from any claim of infringement under the XOMA Patent Rights;

(i) Merrimack acknowledges and agrees that the XOMA Covenant shall not extend to infringement of the XOMA Patent Rights arising out of making or the means or methods used to make any amount of a Dyax Antibody or Product other than those quantities of Antibody reasonably required for Research and Development purposes; *provided*, *however*, that Dyax or Merrimack shall be permitted to make or have made any Dyax Antibody by any means of its selection other than those which otherwise infringe a Valid Claim of the XOMA Patent Rights;

(j) Merrimack acknowledges and agrees that the XOMA Covenant shall become void and without effect as to Merrimack if Merrimack fails to materially discharge or comply with any terms of this Agreement with respect to the XOMA Patent Rights;

(k) Merrimack acknowledges and agrees that the XOMA Covenant is personal to Dyax and Merrimack and Merrimack's Affiliates and cannot be assigned or transferred;

(l) Merrimack agrees that Dyax shall have the right to deliver to XOMA a written report which shall specify the name, address and contact person for Merrimack; and

(m) In the event of the termination of the XOMA Agreement by Dyax, the covenants, licenses and rights granted to Dyax and Merrimack under the XOMA Agreement shall survive. In the event of the termination of the XOMA Agreement by XOMA, the licenses and rights granted to Dyax and Merrimack under the XOMA Agreement shall terminate.

Notwithstanding anything to the contrary in this Agreement, Merrimack's sole and exclusive liability for any failure to comply with the foregoing provisions of this Section 3.3 shall be that the XOMA Covenant may not apply.

3.4 Limitation of Rights. Merrimack acknowledges that its rights with respect to the Dyax Libraries, Dyax Library Materials, Dyax Library Technology, CAT Patent Rights and XOMA Patent Rights are limited to those expressly granted in this Article 3. Each Party agrees that, except as expressly set forth in this Agreement, no other rights or licenses, express or implied, are granted to any patents, patent applications, inventions, trademarks, trade secrets or other intellectual property, or to any materials, information, data or know-how, of the other Party. Merrimack also agrees that no rights are granted to Merrimack by Dyax outside of the Research Field and, upon exercise of its option to obtain a Commercial License, the Commercial Field. Merrimack acknowledges that Dyax has previously licensed and will continue to license use of its phage display libraries and phage display patent rights to Third Parties for use in the Research Field and the Commercial Field and that these Third Party licensees of Dyax may discover antibodies or products that are the same or similar to the Dyax Antibodies or Products. Merrimack also acknowledges that, in connection with Dyax's own internal research and development activities, Dyax has used and will continue to use its phage display libraries and phage display patent rights to discover antibodies or products that are the same or similar to the

Dyax Antibodies or Products. Merrimack agrees that any expression vectors provided by Dyax to Merrimack are to be used for research purposes only.

3.5 Diligence Requirement. Merrimack agrees to use commercially reasonable efforts to research and develop the Dyax Antibodies into commercial Products. Specifically, upon exercise of its option to obtain a Commercial License, Merrimack agrees to use commercially reasonable efforts to develop, pre-clinically and clinically test, market and sell Products in the Commercial Field. Until the first filing for Marketing Authorization for any Product, Merrimack shall provide Dyax with annual written reports summarizing its development and commercialization efforts for all Products during the period since the previous such report; provided that such reports shall not be required to include any non-public technical or scientific information.

ARTICLE IV
PAYMENTS AND REPORTS

4.1 Research Payments; FTEs.

(a) In consideration for the obligations undertaken by Dyax under the Research Plan for each Research Campaign and the other terms and conditions of this Agreement, Merrimack shall compensate Dyax for the work performed by Dyax in accordance with each Research Plan in accordance with the budget established for such Research Campaign. For work performed by Dyax at Merrimack's request in addition to the work set forth in the applicable Research Plan, Merrimack shall compensate Dyax at the FTE Rate; provided that the Parties shall agree on the scope of such work prior to Dyax' commencement thereof. The FTE rate includes all salary, employee benefits, materials and all other expenses including support staff and overhead for or associated with Dyax scientists performing activities under each Research Plan. FTE payments shall be made as follows:

(i) Campaign [**]. The parties acknowledge and agree that, as of the date of this Amended and Restated Collaboration Agreement, the research activities contemplated under the Research Plan for Campaign [**] have been completed and all FTE payments due in connection with such research activities have been paid. Additionally, the parties acknowledge and agree that as of the Effective Date, Campaign [**] Technical Milestones associated with 4.2(a)(i) in the amount of $[**] and Campaign [**] Technical Milestones associated with 4.2(a)(ii) in the amount of $[**] have been paid.

(ii) Campaigns [**]. Prior to the commencement of each of Campaigns [**], Merrimack shall deliver to Dyax a payment equal to [**] percent ([**]%) of the total estimated FTEs that will be due under the Research Plan for each such Research Campaign. The remaining balance of the estimated FTEs for each such Research Campaign, plus any additional FTE expenses reasonably incurred by Dyax in connection with the conduct of such Research Plan, shall be delivered to Dyax within [**] days following the receipt of the report by Merrimack at the conclusion of each such Research Campaign.

(b) Merrimack shall reimburse Dyax for any mutually agreed upon external costs and expenses incurred in connection with the Research Program.

4.2 Technical Milestones

(a) Campaigns [**].

(i) Upon completion of each Research Campaign, Merrimack shall pay to Dyax [**] US Dollars ($[**]) for each Merrimack Target against which Dyax was able to identify Antibodies.

(ii) Within [**] days of the commencement of the first *[**]* with respect to any Dyax Antibody directed against [**] Merrimack Targets, Merrimack shall pay to Dyax [**] US Dollars ($[**]) for each Merrimack Target against which Dyax was able to identify Antibodies.

(b) (b) Campaigns [**]. Merrimack shall pay to Dyax a technical milestone of [**] US Dollars ($[**]) upon delivery of Antibodies to Merrimack under each Research Campaign; provided however, that such fee shall not be due unless Dyax is able to identify Antibodies that bind to each Merrimack Target included in such Research Campaign. For the avoidance of doubt, Technical Milestones will be paid no more than once per Research Campaign.

4.3 Product License Fee. Prior to entering into a sublicense under a CAT Product License with respect to any Selected Target in accordance with Section 3.2(d), Merrimack shall pay to Dyax a Product License Fee of [**] US Dollars (US $[**] by wire transfer. If, for any reason, Dyax has not executed the applicable sublicense within [**] business days after the receipt of such fee, Dyax shall, at Merrimack's request, immediately return such fee.

4.4 Development Milestones. Within [**] days of the occurrence of each of the following events by Merrimack, its Affiliates or sublicensees with respect to Therapeutic Antibody Products against a particular Selected Target (or as described in Section 3.2(e), against more than one Selected Target), Merrimack shall make the following payments to Dyax:

(a) Upon the first achievement of any of the foregoing milestones by a Therapeutic Antibody Product in any Indication:

Milestone Event	Payment
[**]	US $[**]
[**]	US $[**]
[**]	US $[**]
[**]	US $[**]
[**]	US $[**]

(b) Upon the first achievement of any of the foregoing milestones by a Therapeutic Antibody Product in a second Indication:

Milestone Event	Payment
[**]	US $[**]
[**]	US $[**]
[**]	US $[**]
[**]	US $[**]

(c) Upon the first achievement of any of the foregoing milestones by a Therapeutic Antibody Product in a third Indication:

Milestone Event	Payment
[**]	US $[**]
[**]	US $[**]

[**]	US $[**]
[**]	US $[**]

4.5 Diagnostic Antibody Product Milestones. Within [**] days of the occurrence of each of the following events by Merrimack, its Affiliates or sublicensees with respect to Diagnostic Antibody Products against a particular Selected Target (or as described in Section 3.2(e), against more than one Selected Target), Merrimack shall make the following payments to Dyax:

Milestone Event	Payment
[**]	US $[**]
[**]	US $[**]

4.6 Therapeutic Antibody Product Royalties. Merrimack shall pay to Dyax the following royalties on Net Sales for Therapeutic Antibody Products commercialized by Merrimack, its Affiliates or sublicensees, calculated separately for each Therapeutic Antibody Product:

Annual Net Sales Worldwide	Royalty Rate
Portion ≤ US$[**] in a calendar year	[**]%
Portion > US$[**] but ≤ US$[**] in a calendar year	[**]%
Portion > US$[**] in a calendar year	[**]%

4.7 Diagnostic Antibody Product Royalties. Merrimack shall pay a [**]% royalty on Net Sales for Diagnostic Antibody Products commercialized by Merrimack, its Affiliates or sublicensees, calculated separately for each Diagnostic Antibody Product.

4.8 Duration of Royalty Payments. The royalties payable by Merrimack to Dyax pursuant to Sections 4.6 and 4.7 shall be payable on a country-by-country and Product-by-Product basis for a period commencing with the First Commercial Sale and ending ten (10) years after First Commercial Sale; *provided*, *however*, in the event that such ten (10) years period for a Product in a particular country ends prior to the expiration of the last CAT Valid Claim in such country, then royalties shall be payable until the expiration of last CAT Valid Claim.

4.9 [**]. In the event that Merrimack, its Affiliates or sublicensees [**] to [**] or [**] to [**], then Merrimack, its Affiliates and sublicensees [**] to [**] to Dyax [**] to [**] the [**] Sections [**] above.

4.10 Reports, Payments, Records and Audits.

(a) Merrimack shall make the payments due to Dyax under this Article 4 in United States Dollars. Where the payments due to Dyax under this Article 4 are being converted from a currency other than United States Dollars, Merrimack will use the conversion rate reported in *The Wall Street Journal* two (2) Business Days before the day on which Merrimack pays Dyax. Such payment will be made without deduction of exchange, collection or other charges.

(b) All royalty payments will be made at Quarterly intervals. Within [**] days of the end of each Quarter after the First Commercial Sale of each Product in any country, Merrimack shall prepare a statement which shall show on a country-by-country basis for the previous Quarter Net Sales of each Product by Merrimack or its Affiliates or sublicensees and all monies due to Dyax based on such Net Sales and shall submit such statement to Dyax within such [**] day period together with remittance of the monies due.

(c) All payments shall be made free and clear of and without deduction or deferment in respect of any disputes or claims whatsoever and/or as far as is legally possible in respect of any taxes imposed by or under the authority of any government or public authority. Any tax (other than VAT) which Merrimack is required to pay or withhold with respect of the payments to be made to Dyax hereunder shall be deducted from the amount otherwise due provided that, in regard to any such deduction, Merrimack shall give Dyax such assistance, which shall include the provision of such documentation as may be required by any revenue authority and other revenue services, as may reasonably be necessary to enable Dyax to claim exemption therefrom or obtain a repayment thereof or a reduction thereof and shall upon request provide such additional documentation from time to time as is needed to confirm the payment of tax. If by law, regulation or fiscal policy of a particular country, a remittance of royalties in the currency stipulated in Section 4.9(a) above is restricted or forbidden, notice thereof will be promptly given to Dyax, and payment of the royalty shall be made by the deposit thereof in local currency to the credit of Dyax in a recognized banking institution designated by Dyax or its Affiliates. When in any country a law or regulation that prohibits both the transmittal and deposit of such payments ceases to be in effect, all royalties or other sums that Merrimack would

have been under obligation to transmit or deposit but for the prohibition, shall forthwith be deposited or transmitted promptly to the extent allowable.

(d) Merrimack shall keep and shall procure that its Affiliates and sublicensees keep true and accurate records and books of account containing all data necessary for the calculation of the amounts payable by it to Dyax pursuant to this Agreement. Those records and books of account shall be kept for [**] years following the end of the calendar year to which they relate. Upon Dyax's written request, a firm of accountants appointed by agreement between the Parties or, failing such agreement within [**] business days of the initiation of discussions between them on this point Dyax shall have the right to cause an international firm of independent certified public accountants that has not performed auditing or other services for either Party or their Affiliates and is acceptable to Merrimack, such acceptance not to be unreasonably withheld, to inspect such records and books of account. In particular such firm:

(i) shall be given access to and shall be permitted to examine and copy such books and records of Merrimack and its Affiliates and sublicensees upon [**] business days notice having been given by Dyax and at all reasonable times on business days for the purpose of certifying that the Net Sales or other relevant sums calculated by Merrimack and its Affiliates and sublicensees during any calendar year were reasonably calculated, true and accurate or, if this is not their opinion, certify the Net Sales figure or other relevant sums for such period which in their judgment is true and correct;

(ii) prior to any such examination taking place, such firm of accountants shall undertake to Merrimack and its Affiliates and sublicensees, as applicable, that they shall keep all information and data contained in such books and records, strictly confidential and shall not disclose such information or copies of such books and records to any third person including Dyax, but shall only use the same for the purpose of calculations which they need to perform in order to issue the certificate to which this Section envisages;

(iii) any such access examination and certification shall occur no more than [**] per calendar year and will not go back over records more than [**] years old;

(iv) Merrimack and its Affiliates and sublicensees shall make available personnel to answer queries on all books and records required for the purpose of that certification; and

(v) the cost of the accountant shall be the responsibility of Merrimack if the certification shows it to have underpaid monies to Dyax by more than five percent (5%) and the responsibility of Dyax otherwise.

(e) All payments due to Dyax under the terms of this Agreement are expressed to be exclusive of value added tax (VAT) howsoever arising. If Dyax is required to charge VAT on any such payment, Dyax will notify Merrimack. Merrimack will then use all commercially reasonable endeavours to obtain a VAT registration as soon as reasonably possible in order to allow it to reclaim any VAT so chargeable. If Merrimack does obtain a VAT registration then VAT will be added to any relevant payment at the applicable rate. If having used all commercially reasonable endeavours Merrimack is not able to reclaim the VAT (in whole or in part) the parties agree that the amount of any VAT payable will be shared between them equally.

(f) All payments made to Dyax under this Agreement shall be made by wire transfer to the following bank account of Dyax, or such other bank account as notified by Dyax to Merrimack from time to time:

To:	[**]
Routing/Transit:	[**]
For Credit to:	Dyax Corp.
Account No.:	[**]
By Order of:	
	Name of Sender

4.11 Late Payments. If Merrimack fails to make any payment to Dyax hereunder on the due date for payment, without prejudice to any other right or remedy available to Dyax it shall be entitled to charge Merrimack interest (both before and after judgment) of the amount unpaid at the [**] rate plus [**] percent ([**]%) calculated on a daily basis until payment in full is made without prejudice to Dyax's right to receive payment on the due date.

4.12 Merrimack Acknowledgement. Merrimack acknowledges and agrees that the amount of milestones and royalties due under this Article 4 and the duration of the royalty payments (set forth in Section 4.8) have been chosen for the convenience of the Parties as payment for Dyax's services and use of the Dyax Libraries, Dyax Patent Rights, Dyax Research Know-How and Dyax Research Materials to discover Antibodies to Merrrimack Targets, and not as patent royalties.

ARTICLE V
INTELLECTUAL PROPERTY

5.1 Ownership.

(a) Dyax Antibodies and Dyax Antibody Information. Subject to the licenses granted to Merrimack in Section 3.1, Dyax is and shall remain the owner of all Dyax Antibodies that are identified, generated, developed, produced, optimized, or obtained by Dyax from a Dyax Library that is delivered by Dyax to Merrimack in connection with the Research Program, together with the Dyax Antibody Information applicable thereto.

(b) Dyax Libraries. Dyax is and shall remain the owner of the Dyax Libraries and all improvements thereon developed during the term of this Agreement.

(c) Dyax Research Materials and Dyax Research Know-How. Subject to the licenses granted to Merrimack in this Agreement, Dyax is and shall remain the owner of the Dyax Research Materials and Dyax Research Know-How generated or utilized during the conduct of the Research Program.

(d) Merrimack Targets and Merrimack Materials. Merrimack is and shall remain the owner of the Merrimack Targets and Merrimack Materials.

5.2 Inventions. Title to all inventions and other subject matter not accounted for in Section 5.1, (including all intellectual property rights therein) conceived, reduced to practice or otherwise made solely by Dyax personnel in connection with this Agreement shall be owned by Dyax; title to all inventions and other subject matter (including all intellectual property rights therein) conceived, reduced to practice or otherwise made solely by Merrimack personnel in connection with this Agreement shall be owned by Merrimack or any of its Affiliates; and title to all inventions and other subject matter (including all intellectual property rights therein) conceived, reduced to practice or otherwise made jointly by personnel of Dyax and Merrimack in connection with this Agreement shall be jointly owned by Dyax and Merrimack or any of its Affiliates. Except as expressly provided in this Agreement, it is understood that neither Party shall have any obligation to account to the other for profits, or to obtain any approval of the other Party to license or exploit a joint invention, by reason of joint ownership of any invention or other intellectual property and each Party hereby waives any right it may have under the laws of any country to require such accounting or approval. Dyax shall promptly notify Merrimack of all Dyax Antibodies identified against Merrimack Targets in accordance with the applicable Research Plan, together with all Dyax Antibody Information applicable thereto.

5.3 Patenting Antibody Inventions under the Research Program.

(a) Filing and Prosecution. Prior to the exercise of its option to obtain a Commercial License as set forth in Section 3.1(b), Dyax will at Merrimack's request and expense file and prosecute any Patent Rights in any country for any invention solely owned by Dyax which is directed or relating to any Antibody that are identified, generated, developed, produced, optimized, or obtained by Dyax from a Dyax Library that is delivered by Dyax to Merrimack in connection with the Research Program. Thereafter, such Patent Rights shall be deemed to be included in the rights licensed to Merrimack under Section 3.1. Dyax shall (i) keep Merrimack fully informed as to the filing, prosecution and maintenance of such Patent Rights, (ii) furnish to Merrimack copies of all documents relevant to any such filing, prosecution and maintenance, and (iii) allow Merrimack [**] days to review and comment upon, and to incorporate Merrimack's reasonable comments into, any such document filed with any patent office with respect to such Patent Rights prior to filing such documents.

Upon exercise of its option to obtain a Commercial License with respect to a Dyax Antibody, as set forth in Section 3.1(b), Merrimack may, at Merrimack's expense (i) in Dyax's name, file, maintain, defend and enforce Patent Rights for any invention solely owned by Dyax which is directed or relating to such Dyax Antibody and assume the prosecution of any such Patent Rights filed by Dyax pursuant to this Section 5.3, or (ii) require Dyax to assign to Merrimack any Patent Rights for any invention solely owned by Dyax which is directed or relating to such Dyax Antibody. Dyax will use reasonable efforts to cooperate with Merrimack in such activities.

Dyax shall have [**] days to review and comment upon any patent application before it is filed by Merrimack pursuant to this Section 5.3, and Merrimack shall incorporate Dyax's reasonable comments. For the avoidance of doubt, Dyax acknowledges and agrees that if, upon Merrimack's election to obtain a Commercial License with respect to a Dyax Antibody, Dyax is unable to obtain a CAT Product License with respect to the Target against which such Dyax Antibody is directed because Dyax no longer has any CAT Product License options available to it under the terms of the CAT Agreement, Merrimack's rights under clauses (i) and (ii) of this paragraph above shall apply notwithstanding such inability by Dyax to obtain a CAT Product License and Merrimack may, at Merrimack's expense, require Dyax to assign to Merrimack any Patent Rights for any invention solely owned by Dyax which is directed or relating to such Dyax Antibody.

(b) Enforcement. Merrimack shall have the right but not the obligation, at its expense, to enforce any Patent Rights which relate to any Antibody that are identified, generated, developed, produced, optimized, or obtained by Dyax from a Dyax Library that is delivered by Dyax to Merrimack in connection with the Research Program. Dyax shall cooperate with Merrimack, at Merrimack's expense, in pursuing any litigation or other enforcement action to enforce such Patent Rights, including allowing Merrimack to file suit in Dyax's name, making Dyax employees available to Merrimack, and promptly executing any documents which may be required to pursue such action. Merrimack shall control any such litigation or other enforcement action and shall enter into, or permit, the settlement of any such litigation or other enforcement action. All monies recovered upon the final judgment or settlement of any suit to enforce such Patent Rights shall first be paid to recover the respective actual out-of-pocket expenses of Merrimack and Dyax, or equitable portion thereof, associated with the enforcement. The remainder of any such monies shall be deemed to be Net Sales for purposes of determining the royalties owed by Merrimack to Dyax under Sections 4.5. and 4.6.

5.4 Further Assurances. Each Party has and will have appropriate agreements with its employees and contractors necessary to fully effect the provisions of Sections 5.1, 5.2 and 5.3. Each Party agrees to execute such assignments and other documents, to cause its employees and agents to execute such assignments and other documents, and to take such other actions, as may reasonably be requested by the other Party from time to time to give effect to the provisions of Sections 5.1, 5.2 and 5.3.

ARTICLE VI
CONFIDENTIALITY, PUBLICITY AND PUBLICATIONS

6.1 Confidentiality. With respect to any Confidential Information received by one Party from the other Party, the receiving Party undertakes and agrees, during the term of this Agreement and for an additional period of [**] years thereafter, to:

(a) only use the Confidential Information for the purposes envisioned under this Agreement and not to use the same for any other purpose whatsoever;

(b) ensure that only those of its officers, directors, employees, consultants and permitted sublicensees who are directly concerned with the carrying out of this Agreement have

access to the Confidential Information on a strictly "need to know" basis and are informed of the secret and confidential nature of it;

(c) keep the Confidential Information secret, confidential, safe and secure and shall not directly or indirectly disclose or permit to be disclosed the same to any Third Party, including any consultants or other advisors, without the prior written consent of the disclosing Party, except to the extent disclosure is in connection with its use as envisioned under this Agreement;

(d) ensure that the Confidential Information will not be covered by any lien or other encumbrance in any way; and

(e) not copy, reproduce or otherwise replicate for any purpose or in any manner whatsoever any documents containing the Confidential Information except in connection with its use as envisioned under this Agreement.

Merrimack acknowledges and agrees that Dyax shall be permitted to disclose this Agreement in confidence to CAT and XOMA to the extent reasonably necessary to comply with Dyax's obligations pursuant to the CAT Agreement and XOMA Agreement.

Dyax agrees, at Merrimack's request, to enforce the confidentiality and non-use provisions of the CAT Agreement and any CAT Product License against CAT if Merrimack reasonably believes that CAT has failed to adhere to such obligations with respect to any Merrimack Confidential Information that

CAT learns through the CAT Gatekeeping Procedure set forth in Appendix B.

6.2 Exclusions. The obligations referred to in Section 6.1 above shall not extend to any Confidential Information which:

(a) was in the public domain prior to this Agreement or becomes part of the public domain through no fault of the receiving Party, or

(b) is known or becomes known to the receiving Party (having been generated independently by the receiving Party or by a Third Party in circumstances where it has not been derived directly or indirectly from any improper use of Confidential Information of the disclosing Party), or

(c) is or was disclosed to the receiving Party at any time by a Third Party having no obligation of confidentiality with respect to such Confidential Information, or

(d) is required to be disclosed by applicable law, rule, regulation or administrative or court proceeding (including as part of any regulatory submission or approval process) and then only when prompt written notice of this requirement has been given to the disclosing party so that it may, if so advised, seek appropriate relief to prevent such disclosure, provided always that in such circumstances such disclosure shall be only to the extent so required and shall be subject to prior consultation with the disclosing party with a view to agreeing on the timing and content of such disclosure (i.e., obligations under Section 6.1 shall not apply to such required disclosure), or

(e) is information concerning Product which Merrimack is reasonably required to disclose to consultants (such as advertising agencies, reimbursement experts and marketing research companies), customers, healthcare professionals, consumers or regulatory agencies, or which is disclosed by Merrimack to Affiliates and distributors and sublicensees in order to allow them to market and sell Product (i.e., Merrimack's obligations under Section 6.1 shall not extend to such disclosure by Merrimack, but nothing in this clause (e) shall relieve Dyax of obligations under Section 6.1); or

(f) is disclosed by Merrimack to a Third Party in exercising the rights and licenses granted under this Agreement, provided that such Third Party has confidentiality obligations similar to those of this Agreement (i.e., Merrimack's obligations under Section 6.1 shall not extend to such disclosure by Merrimack, but nothing in this clause (f) shall relieve Dyax of obligations under Section 6.1).

6.3 Dyax Antibodies. Notwithstanding anything to the contrary contained herein, the fact that any given Dyax Antibody is identified in a Research Campaign against a Merrimack Target shall constitute Confidential Information of Merrimack.

6.4 Publicity. No public announcement or other disclosures concerning the terms of this Agreement shall be made to a Third Party, whether directly or indirectly, by either Party (except confidential disclosures to professional advisors) without first obtaining the approval of the other Party and agreement upon the nature and text of such announcement or disclosure except that: (i) a Party may disclose those terms which it is required by regulation or law to disclose, provided that it takes advantage of all provisions to keep confidential as many terms as possible; and (ii) a Party desiring to make such public announcement or other public disclosure shall obtain the consent of the other Party to the proposed announcement or public disclosure prior to public release. Each Party agrees that it shall cooperate fully with the other with respect to all disclosures regarding this Agreement as required under the regulations of the U.S. Securities and Exchange Commission, applicable stock exchanges, NASDAQ and any other comparable foreign body including requests for confidential information or proprietary information of either Party included in any such disclosure. Merrimack agrees that Dyax may include Merrimack on a list of Dyax licensees. In addition, a Party may disclose the terms and conditions of this Agreement to a Third Party in connection with an equity investment in such Party, a loan or other financing, a merger, consolidation, change in control or similar transaction by such Party, the transfer or sale of the assets of such Party relating to this Agreement, or in connection with the granting of a sublicense under this Agreement.

6.5 Publication. In the event that either Party (the "Publishing Party") wishes to publish, in oral or written form, any Confidential Information of the other Party (the "Non-Publishing Party"), such Party will promptly notify the Non-Publishing Party and provide the Non-Publishing Party with a written copy of the proposed publication prior to its submission for publication. At the Non-Publishing Party's request, such the Publishing Party will delay publication in order to permit the Non-Publishing Party to take the steps necessary to secure rights to any intellectual property arising from the Publishing Party's use of Confidential Information, including the filing of one or more patent applications. In no event will such delay exceed [**] days from the date the Non-Publishing Party receives a written copy of the proposed publication. If the Non-Publishing Party makes such a request, the Publishing Party agrees to

cooperate with the Non-Publishing Party in securing such intellectual property rights using the Non-Publishing Party's choice of counsel and the Non-Publishing Party will bear all costs of such filing. No patent application describing an invention resulting from the Publishing Party's use of Confidential Information will be filed or caused to be filed by the Publishing Party without first notifying the Non-Publishing Party as described above for proposed publications. Any publication or patent application will acknowledge the Non-Publishing Party's contribution. No publication or patent application will disclose any Confidential Information of a Party without the prior written permission of that Party.

ARTICLE VII
REPRESENTATIONS, WARRANTIES AND COVENANTS.

7.1 Authorization. Each Party represents and warrants to the other Party that it has the legal right and power to enter into this Agreement, to extend the rights and licenses granted to the other in this Agreement, and to fully perform its obligations hereunder, and that the performance of such obligations will not conflict with its charter documents or any agreements, contracts, or other arrangements to which it is a party.

7.2 Dyax Representations and Warranties. Dyax represents and warrants to Merrimack that:

[**].

7.3 Dyax Covenants. Dyax hereby covenants and agrees that [**] or [**] of the [**] of [**] to be [**] the [**] during the [**] of the [**] not be [**] not be [**] with the [**] in the [**] the [**] or [**]; and [**], and to the [**] have the [**] to [**]. Merrimack agrees that Dyax shall not be deemed to have breached its obligations under this Section 7.3 unless Merrimack's rights to research, develop and/or commercialize Products under this Agreement are adversely affected.

7.4 Disclaimer. Except as otherwise set forth in Section 5.3, nothing in this Agreement is or shall be construed as obligating Dyax to (a) bring or prosecute actions or suits against Third Parties for infringement of any of the patent rights licensed or sublicensed by Dyax to Merrimack hereunder, (b) maintain any patent or to continue to prosecute any patent application licensed or sublicensed by Dyax to Merrimack hereunder, or (c) granting by implication, estoppel, or otherwise (excluding explicit license and sublicense grants) any licenses or rights under patents or other rights of Dyax or Third Parties, regardless of whether such patents or other rights are dominant or subordinate to any patent rights licensed or sublicensed by one Party to the other Party hereunder.

7.5 No Other Warranties. Except as otherwise set forth in Section 7.1 and 7.2, nothing in this Agreement shall be construed as a warranty or representation by Dyax that the use of the Dyax Libraries or Dyax Library Materials and the practice of the patent rights and know-how licensed or sublicensed to Merrimack hereunder will result in any Dyax Antibodies or Products, or as a warranty or representation by Dyax that the exploitation of any of the foregoing will be free from infringement of patents of Third Parties. EXCEPT AS OTHERWISE SET FORTH IN SECTION 7.1 and 7.2 ABOVE, NEITHER PARTY HERETO MAKES ANY

REPRESENTATIONS OR WARRANTIES WITH RESPECT TO ANY OF THE PATENT RIGHTS, MATERIALS (INCLUDING WITHOUT LIMITATION THE DYAX LIBRARIES AND DYAX MATERIALS) OR KNOW-HOW LICENSED HEREUNDER, EXPRESS OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, BY STATUTE OR OTHERWISE, OR THAT ANY PRODUCT OR SERVICE MADE, USED, SOLD, OR OTHERWISE DISPOSED OF UNDER ANY LICENSE OR SUBLICENSE GRANTED IN THIS AGREEMENT IS OR WILL BE FREE FROM INFRINGEMENT OF ANY PATENT RIGHTS OR OTHER INTELLECTUAL PROPERTY RIGHT OF ANY THIRD PARTY. EACH PARTY SPECIFICALLY DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY, OF FITNESS FOR A PARTICULAR PURPOSE, OF VALIDITY OR SCOPE OF SUCH PATENT RIGHTS, MATERIALS OR KNOW-HOW, ARISING FROM COURSE OF DEALING OR OF NON-INFRINGEMENT OF THE INTELLECTUAL PROPERTY RIGHTS OF ANY THIRD PARTY.

7.6 Limitation of Liability. Neither Party shall be liable to the other for consequential, incidental, indirect or punitive damages arising from the performance or nonperformance of such Party under this Agreement whether such claim is based on contract, tort (including negligence) or otherwise, even if an authorized representative of such Party is advised of the possibility or likelihood of same.

ARTICLE VIII
INDEMNIFICATION

8.1 Indemnification by Merrimack. Merrimack shall indemnify, defend, and hold harmless Dyax and its Affiliates, directors, officers, employees, and agents and their respective successors, heirs and assigns (the "Dyax Indemnitees") against any liability, damage, loss, or expense (including reasonable attorneys fees and expenses of litigation) incurred by or imposed upon the Dyax Indemnitees or any one of them in connection with any claims, suits, actions, demands, or judgments in each case initiated by a Third Party which arise out of: (a) any Product developed or commercialized by or on behalf of Merrimack; (b) the gross negligence or willful misconduct of Merrimack in connection with this Agreement; or (c) any breach of any obligation of Merrimack under this Agreement, including without limitation, the failure of Merrimack to comply with the provisions of Sections 3.3 through 4.6 of this Agreement. Notwithstanding the foregoing, Merrimack shall have no obligation under this Section 8.1 with respect to claims, suits, actions, demands or judgments to the extent the same is caused by the gross negligence or willful misconduct of a Dyax Indemnitee.

8.2 Indemnification by Dyax. Dyax shall indemnify, defend, and hold harmless Merrimack and its Affiliates, directors, officers, employees, and agents and their respective successors, heirs and assigns (the "Merrimack Indemnitees") against any liability, damage, loss, or expense (including reasonable attorneys fees and expenses of litigation) incurred by or imposed upon the Merrimack Indemnitees or any one of them in connection with any claims, suits, actions, demands, or judgments in each case initiated by a Third Party which arise out of: (a) the gross negligence or willful misconduct of Dyax in connection with this Agreement; or (b) any breach of any obligation of Dyax under this Agreement. Notwithstanding the foregoing, Dyax shall have no obligation under this Section 8.2 with respect to claims, suits, actions,

demands or judgments to the extent the same is caused by the gross negligence or willful misconduct of a Merrimack Indemnitee.

8.3 Procedure. A Party (for purposes of this Section 8.3, the "Indemnitee") that intends to claim indemnification under this Article 8 shall: (i) promptly notify the indemnifying party (the "Indemnitor") in writing of any claim, action, suit, or other proceeding brought by Third Parties in respect of which the Indemnitee or any of its Affiliates, directors, officers, employees, successors or assigns intend to claim such indemnification hereunder; (ii) provide the Indemnitor sole control of the defense and/or settlement thereof, and (iii) provide the Indemnitor, at the Indemnitor's request and expense, with reasonable assistance and full information with respect thereto. Notwithstanding the foregoing, the indemnity obligation in this Article 8 shall not apply to amounts paid in settlement of any loss, claim, damage, liability or action if such settlement is effected without the consent of the Indemnitor, to the extent such consent is not withheld unreasonably or delayed. Without limiting the foregoing provisions of this Section 8.3, the Indemnitor shall keep the Indemnitee reasonably informed of the progress of any claim, suit or action under this Section 8.3 and the Indemnitee shall have the right to participate in any such claim, suit or proceeding with counsel of its choosing at its own expense, but the Indemnitor shall have the sole right to control the defense or settlement thereof.

ARTICLE IX
TERM AND TERMINATION

9.1 Research Term. The term of the Research Program (the "Research Term") commenced on the effective date of the Original Agreement, has continued in effect through the Effective Date hereof, and shall remain in effect until all activities required to be taken by Dyax and Merrimack under all Research Campaigns of the Research Program have been completed.

9.2 Term of Agreement. This Agreement commenced on the effective date of the Original Agreement, has continued in effect through the Effective Date hereof, and shall remain in effect, unless earlier terminated as provided in this Article 9, for so long as Merrimack or any of its Affiliates or sublicensees continues to develop and/or commercialize Products that are or may be royalty-bearing hereunder or under any CAT Product License and thereafter shall terminate, on a country-by-country and Product-by-Product basis on the earliest the date after which no payments are due to Dyax under Article 4 of this Agreement.

9.3 Termination by Merrimack. After the expiration of the term of the Research Program, Merrimack shall have the right to terminate this Agreement in its entirety or on a Product-by-Product basis at any time by providing ninety (90) days prior written notice to Dyax.

9.4 Termination by Dyax. In the event that Merrimack fails to make timely payment of any amounts due to Dyax under Article 5 of this Agreement, Dyax may terminate this Agreement upon thirty (30) days prior written notice to Merrimack, unless Merrimack pays all undisputed past-due amounts prior to the expiration of such thirty (30) day notice period.

9.5 Termination for Other Material Breach. In the event that either Party commits a material breach of any of its obligations under this Agreement, and such Party fails to remedy that breach within [**] days after receiving written notice thereof from the other Party, then the

other Party may immediately terminate this Agreement upon written notice to the breaching Party.

9.6 Effect of Termination.

(a) Upon termination of this Agreement in its entirety or with respect to any particular Product pursuant to Section 9.3, 9.4 or 9.5 hereof, all of Merrimack's rights and obligations under this Agreement (including any license rights) with respect to all Products or such particular Product, as applicable, shall terminate immediately and, except as set forth in Section 9.6(c), Merrimack shall cease the development and commercialization of all Products or such particular Product, as applicable; *provided however* that, subject to the terms of any Third Party Phage Display Agreement, [**].

(b) The following provisions shall survive the expiration or termination of this Agreement: Articles 5, 6, 8 and 10 and Sections , 4.10, 4.11, 7.4, 7.5, 7.6, and this Section 9.6; as well as Merrimack's obligation to make payments with respect to Products sold prior to the effective date of termination. In the event of the termination of this Agreement with respect to a Product in a country under Section 9.2, upon satisfaction of Merrimack's payment obligations pursuant to Article 4, any license granted under Article 3 with respect thereto shall be fully paid up and royalty free.

(c) Upon any termination of this Agreement in its entirety or with respect to a Product, at its option, Merrimack shall be entitled to complete production of and/or sell any in-process and/or completed inventory of Product under the licenses granted under this Agreement which remains on hand as of the date of termination, so long as Merrimack pays to Dyax the payments applicable to said subsequent sales in accordance with the same terms and conditions set forth in this Agreement.

(d) Upon expiration or termination of this Agreement for any reason, nothing herein shall be construed to release either Party from any obligation that matured prior to the effective date of such expiration or termination.

(e) In the event that Merrimack disputes a payment obligation and Merrimack notifies Dyax of such dispute and makes the payment under protest, then notwithstanding such payment, Merrimack shall have the right to bring an action as to whether or not Merrimack is obligated to make such payment and to the extent Merrimack prevails in such action, Dyax shall return such disputed payment to Merrimack.

(f) This Agreement may be terminated only as expressly provided in this Article 9.

ARTICLE X
MISCELLANEOUS

10.1 Relationship of Parties. Nothing in this Agreement or in the course of business between Dyax and Merrimack shall make or constitute either Party a partner, employee or agent of the other. Neither Party shall have any right or authority to commit or legally bind the other in

any way whatsoever including, without limitation, the making of any agreement, representation or warranty.

10.2 Notices. All notices, requests, demands and other communications required or permitted to be given pursuant to this Agreement shall be in writing and shall be deemed to have been duly given upon the date of receipt if delivered by hand, recognized international overnight courier, confirmed facsimile transmission, or registered or certified mail, return receipt requested, postage prepaid to the following addresses or facsimile numbers:

If to Dyax:
Dyax Corp.
300 Technology Square
Cambridge, MA 02139
Attention: Vice President, Business Development
Attention: Corporate Counsel, Legal Department
Facsimile: (617) 225-2501

If to Merrimack:
Merrimack Pharmaceuticals, Inc.
One Kendall Square
Building 700, 2nd Floor
Cambridge, MA 02139

Attention: Senior Director, Business Development
Facsimile: (617) 491-1386

Either Party may change its designated address and facsimile number by notice to the other Party in the manner provided in this Section.

10.3 Assignment. This Agreement may not be assigned by either Party without the prior written consent of the other Party, except that either Party may assign this Agreement (i) to any of its Affiliates, (ii) in connection with the grant of a security interest, or (iii) or to a successor in connection with the merger, consolidation, or sale of all or substantially all of its assets or that portion of its business pertaining to the subject matter of this Agreement, with prompt written notice to the other Party of any such assignment and provided that the assignee assumes in writing all of the obligations of the assignor. This Agreement shall inure to the benefit of and be binding upon the Parties and their respective lawful successors and assigns

10.4 Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts, without regard to any choice of law principles that would dictate the application of the laws of another jurisdiction.

10.5 Compliance With Law. Nothing in this Agreement shall be construed so as to require the commission of any act contrary to law, and wherever there is any conflict between any provision of this Agreement and any statute, law, ordinance or treaty, the latter shall prevail, but in such event the affected provisions of the Agreement shall be conformed and limited only to the extent necessary to bring it within the applicable legal requirements.

10.6 Force Majeure. Neither Party shall be liable for failure or delay in performance of any obligation under this Agreement, other than payment of any amount due and payable, if such failure or delay is caused by circumstances beyond the control of the Party concerned, including, without limitation, failures resulting from fires, earthquakes, power surges or failures, accidents, labor stoppages, war, revolution, civil commotion, acts of public enemies, blockade, embargo, inability to secure materials or labor, any law, order, proclamation, regulation, ordinance, demand, or requirement having a legal effect of any government or any judicial authority or representative of any such government, acts of God, or acts or omissions of communications carriers, or other causes beyond the reasonable control of the Party affected, whether or not similar to the forgoing. Any such cause shall delay the performance of the affected obligation until such cause is removed.

10.7 Amendment and Waiver. This Agreement may be amended, supplemented, or otherwise modified only by means of a written instrument signed by both Parties. Any waiver of any rights or failure to act in a specific instance shall relate only to such instance and shall not be construed as an agreement to waive any rights or fail to act in any other instance, whether or not similar.

10.8 Headings. All headings used in this Agreement are inserted for convenience only and are not intended to affect the meaning or interpretation of this Agreement or any Article or Section hereof.

10.9 Severability. In the event any provision of this Agreement should be held invalid, illegal or unenforceable, the remaining provisions shall not be affected or impaired and the Parties will use all reasonable efforts to replace the applicable provision with a valid, legal and enforceable provision which insofar as practical implements the purposes hereof, provided, however, that if the Parties fail to reach such agreement within [**] days, a Party whose rights or obligations are materially affected as a result of a provision being held invalid, illegal or unenforceable may terminate this Agreement.

10.10 Entire Agreement. This Agreement constitutes the entire agreement between the Parties with respect to the subject matter hereof and supersedes any term sheets and all prior agreements or understandings between the Parties relating to the subject matter hereof.

10.11 Bankruptcy. All rights and licenses granted under or pursuant to this Agreement by Dyax to Merrimack are, and shall irrevocably be deemed to be, “intellectual property” as defined in Section 101(56) of the Bankruptcy Code. In the event of the commencement of a case by or against either Party under any Chapter of the Bankruptcy Code, this Agreement shall be deemed an executory contract and all rights and obligations hereunder shall be determined in accordance with Section 365(n) thereof. Unless a Party rejects this Agreement and the other Party decides not to retain its rights hereunder, the other Party shall be entitled to a complete duplicate of (or complete access to, as appropriate) all intellectual property and all embodiments of such intellectual property held by the Party and the Party shall not interfere with the rights of the other Party, which are expressly granted hereunder, to such intellectual property and all embodiments of such intellectual property from another entity.

10.12 Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original agreement.

10.13 Amends and Restates. This Agreement amends, restates and replaces in its entirety the Original Agreement.

IN WITNESS WHEREOF, the undersigned have duly executed and delivered this Agreement as a sealed instrument effective as of the date first above written.

DYAX CORP.		**MERRIMACK PHARMACEUTICALS, INC**.	
By:	/s/ Henry E. Blair	By:	/s/ Robert J. Mulroy
Title:	Chief Executive Officer	Title:	President and Chief Executive Officer
Date:	January 24, 2007	Date:	January 25, 2007

APPENDIX A

RESEARCH PLAN
FOR
CAMPAIGN I

Workplan Overview

The aim of the project is to identify [**] from Dyax's antibody library against [**] targets provided by Merrimack Pharmaceuticals, Inc. (Merrimack). For [**] of the targets, [**] are available and will be used in the selection plan. A schematic showing the overall workplan is presented in **Scheme 1**. Dyax will perform [**] using the Dyax [**]. Selection output [**] will be tested using a [**] against the [**], and at [**] selection [**] per target showing a [**]. The [**] will be subjected to [**] target to screen approximately [**] per target. Confirmed [**] will be [**], and the [**] data will be used to identify up to [**] per target that will be [**]. The resulting [**] will be used to [**] based either on [**]. Based on the results from the [**] will be selected for [**]) to Merrimack for more extensive evaluation.

Deliverables to Merrimack for each of [**] targets

[**]

Reagent And Data Delivery To Dyax

Merrimack will supply Dyax with the following materials with respect to [**] targets for selections and screening:

[**]

Scheme 1, Plan Overview

[**]

Target Validation, Selections, Screening, And Sequencing

The selection plan for soluble protein targets is dependent on the target format, and [**].

[**].

Scheme 2, Representative Selection Strategies:

[**]

Final Lead Selection And [**] Production

[**].

Key Dates And Timeline

A project timeline with a start date of Dec 2nd, 2005 has the following key dates:

[**]

APPENDIX B
CAT GATEKEEPING PROCEDURE

For each Nominated Target (which must be accompanied by a GenBank® accession number or similar information which uniquely identifies that Nominated Target) submitted by Dyax under Clause 4.1, CAT will, on a Nominated -Target-by-Nominated -Target basis, not grant a Product License to Dyax, if:

1. CAT is, at the date of submission of the Target Option Notice by Dyax, contractually obligated on an exclusive basis in respect of the Nominated Target with a Third Party pursuant to an agreement with that Third Party which was entered into prior to the Commencement Date of this Agreement; or

2. CAT is, at the date of submission of the Target Option Notice by Dyax, engaged in internal research and/or development with respect to the Nominated Target (as can be measured by reliable or verifiable means).

NOTES

1. For the avoidance of doubt, CAT will not subject any Nominated Target to the CAT Gatekeeping Procedure unless and until Dyax supplies CAT with a GenBank® accession number or similar information which uniquely identifies that Nominated Target.

2. If Dyax supplies CAT with an incorrect GenBank® accession number for a Nominated Target or otherwise incorrectly identifies a Nominated Target which is then subjected to the CAT Gatekeeping Procedure, the result of the CAT Gatekeeping Procedure in respect of such Nominated Target shall prevail even if it is subsequently discovered that such incorrect GenBank® accession number or identifying information had been provided by Dyax.

3. Within one (1) month after notice is given to Dyax of a refusal by CAT to grant a Product License in respect of any Nominated Target, Dyax may notify CAT that it wishes to appoint an Expert to make such enquiries of CAT as may be reasonably necessary for the Expert to be able to confirm to Dyax that the CAT Gatekeeping Procedure had been correctly applied by CAT in respect of such Nominated Target. CAT shall provide such information to the Expert as the Expert may reasonably determine is required in order to make such confirmation. For the avoidance of doubt the Expert shall not be entitled (unless CAT consents) to enter CAT premises in order to carry out its enquiries, shall only provide the confirmation to Dyax on a "Yes/No" basis and shall not give or be obliged to give to Dyax any other information obtained from CAT in respect of the CAT Gatekeeping Procedure or the relevant Nominated Target. The Expert shall, prior to making any enquiries of CAT, enter into a confidential disclosure agreement with CAT. Notwithstanding the foregoing, CAT shall not be obliged to respond to the enquiries of the Expert if to do so would, or would reasonably be expected to, cause a breach in terms of any agreement CAT may have with any other Third parties; provided, however, that such disclosure subject to the confidential disclosure agreement shall be treated by CAT in the same manner as disclosure in its normal business operations. The Expert shall complete its investigations and provide the confirmation to Dyax (with a copy to CAT) within thirty (30) days after appointment by Dyax, and payment of the Expert's fee shall be conditioned on such delivery being timely

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made. If such written confirmation is not made within such thirty (30) days period, then a replacement Expert shall be appointed within 10 days thereafter, subject to same terms and conditions stated above. If an Expert provides notice that he or she cannot complete the analysis because CAT has failed without good reason to provide any information requested as provided above, then CAT shall have no more than 30 days to provide the information and the Expert shall then have no more than 15 days after the information is provided to the Expert to evaluate the information and make a determination. Failure of the second Expert to provide such written confirmation to Dyax on a "Yes/No" basis within thirty (30) days after appointment shall be irrevocably deemed to be confirmation that CAT correctly applied the CAT Gatekeeping Procedure to the Nominated Target in question, provided, however that until (i) CAT provides all information that it is required to provide in accordance with this Schedule 2 and (ii) the expiration of any extension required for the Expert to evaluate such information, there shall not be deemed to be any such confirmation that CAT correctly applied the CAT Gatekeeping Procedure to the Nominated Target in question.

If the Expert appointed by Dyax hereunder decides that CAT correctly applied, or is deemed to have correctly applied, the CAT Gatekeeping Procedure, Dyax shall be responsible for the Expert's fees and CAT shall thereafter have no obligations to Dyax in respect of such Nominated Target. If the Expert decides that CAT did not correctly apply the CAT Gatekeeping Procedure Dyax shall be granted a Product License in relation to the Nominated Target in question (provided that CAT is not restricted by obligations to any Third Party in relation to the Nominated Target in question in which case the Product License will be subject to those restrictions) and CAT shall be responsible for the Expert's fees. The procedure described in this paragraph 3 will not apply to any determination by CAT that the Primary Application of a Nominated Target is in the Excluded Field, where CAT's decision will be final if made in good faith.

"Expert" means a patent agent who is independent of CAT and all of the other parties with an interest in the outcome of a determination regarding a Nominated Target, who has suitable knowledge and experience in the reasonable opinion of Dyax to perform the above activities, subject to CAT's consent, which consent shall not be unreasonably withheld or delayed.

APPENDIX C
CAT PATENT RIGHTS

[**].

EXHIBIT D
CAT PRODUCT LICENSE

Private & Confidential

CAMBRIDGE ANTIBODY TECHNOLOGY LIMITED (1)

AND

DYAX CORP. (2)

PRODUCT LICENSE FOR

Appendix D

THIS AGREEMENT is made:

BETWEEN:

(1) **CAMBRIDGE ANTIBODY TECHNOLOGY LIMITED** (Registered in England No. 2451177) whose registered office is at The Milstein Building, Granta Park, Cambridge, Cambridgeshire, CB1 6GH, UK ("**CAT**").

(2) **DYAX CORP.** a corporation organised and existing under the laws of the State of Delaware having its principal place of business at 300 Technology Square, Cambridge, Massachusetts 02139 USA ("**Dyax**").

BACKGROUND:

(a) By the terms of the Amendment Agreement (as defined below), CAT granted Dyax certain options to be granted Product Licences under the Antibody Phage Display Patents and CAT Know How (all as defined below).

(b) Dyax has nominated the Target (which was identified prior to the execution of the Amendment Agreement), and this Target has passed the CAT Gatekeeping Procedure (each as defined below).

(c) By this Agreement CAT wishes to grant to Dyax a Product Licence in respect of Diagnostic Antibody Products and Therapeutic Antibody Products against the Target.

In consideration of the mutual covenants and undertakings set out below, **THE PARTIES AGREE** as follows:

1. Definitions

1.1 In this Agreement, the terms defined in this Clause shall have the meanings specified below:

"**Acceptance Fee**" means Dollars (US $).

[**]

"**Affiliate**" means any company, partnership or other entity which directly or indirectly Controls, is Controlled by or is under common Control with any other entity.

"**Agreement**" means this product licence and any and all Schedules, appendices and other addenda to it as may be amended from time to time in accordance with the provisions of this agreement.

"**Amendment Agreement**" means the agreement executed by Dyax and CAT on 3 January 2003, as amended.

"**Antibody**" means a molecule or a gene encoding such a molecule comprising or containing one or more immunoglobulin variable domains or parts of such domains or any existing or future fragments, variants, modifications or derivatives thereof.

"**Antibody Library**" means any Antibody library constructed using processes which are covered by a claim of an issued and unexpired patent included within the Antibody Phage Display Patents which has not been held permanently revoked, unenforceable or invalid by a decision of a court or other governmental agency of competent jurisdiction unappealed within the time allowed for appeal, and which has not been admitted to be invalid or unenforceable through reissue or disclaimer or otherwise.

"**Antibody Phage Display Patents**" means: (a) the patents and patent applications listed in Schedule 1 and any patents issuing from such patent applications, together with any divisions, registrations, confirmations, reissues, extensions, renewals, continuations, continuations-in-part, revalidations, additions, substitutions, renewals or supplementary protection certificates thereof throughout the world; and (b) any Patent Rights which claim or cover any invention or discovery which is developed by CAT or its Affiliates at any time during the term of this Agreement directly related to Antibody phage display or Antibody Services; *provided, however*, that Antibody Phage Display Patents shall always exclude (i) CAT Diabodies Patent Rights, (ii) any Patent Rights owned or controlled by CAT which claim or cover Catalytic Antibodies, (iii) any Patent Rights owned or controlled by CAT which claim ribosome display technology, (iv) any Patent Rights which claim Single Domain Antibodies, and (v) any Patent Rights acquired by CAT after the Commencement Date from any Third Party for consideration or as a result of CAT's acquisition of or merger with such Third Party.

"**Antibody Services**" means the provision of research and/or development services for the identification, generation, derivation or development of one or more Antibody Libraries or Antibodies derived therefrom.

"**Business Day**" means a day (other than a Saturday or Sunday) on which the banks are ordinarily open for business in the City of London and the Commonwealth of Massachusetts.

"**CAT Diabodies Patent Rights**" means (a) the Patent Rights entitled "Diabodies — multivalent and multispecific binding proteins, their manufacture and use", PCT/GB93/02492 and (b) the Patent Rights entitled "Retargeting antibodies and diabodies", PCT/GB94/02019.

"**CAT Gatekeeping Procedure**" means the procedure set out in Schedule 2 of the Amendment Agreement which CAT has carried out in respect of the Target prior to the grant of this Product Licence.

"**CAT Know-How**" means any Confidential Information of CAT which constitutes unpatented know-how, technical and other information related to the subject matter of the

Antibody Phage Display Patents as identified in Schedule 2 and as amended from time to time in accordance with Schedule 2.

"**CAT Licensable Antibody**" means any Antibody to the Target (a) where such Antibody has been identified, generated, developed, produced or derived by Dyax or a Dyax Sublicensee or its sublicensees and (b) the identification, generation, development, production or derivation of such Antibody uses any of the processes claimed or covered by a claim of an issued and unexpired patent included within the Antibody Phage Display Patents (which has not been held permanently revoked, unenforceable or invalid by a decision of a court or other governmental agency of competent jurisdiction unappealed within the time allowed for appeal, and which has not been admitted to be invalid or unenforceable through reissue or disclaimer or otherwise) or uses the CAT Know-How and (c) which is potentially useful for the development of any Diagnostic Antibody Product and/or any Therapeutic Antibody Product.

"**Catalytic Antibodies**" means solely those Antibodies which bind to and catalyze the chemical transformation of a substrate and in which an Antibody binding region is involved in said catalysis.

"**Commencement Date**" means the date of this Agreement first written above.

"**Competent Authority**" means any national or local agency, authority, department, inspectorate, minister, ministry official, parliament or public or statutory person (whether autonomous or not) of any government of any country having jurisdiction over either any of the activities contemplated by this Agreement or the Parties including the European Commission, the Court of First Instance and the European Court of Justice.

"**Controls**" means the ownership, directly or indirectly, of more than fifty percent (50%) of the outstanding equity securities of a corporation which are entitled to vote in the election of directors or a more than fifty percent (50%) interest in the net assets or profits of an entity which is not a corporation.

"**Diagnostic Antibody Product**" means any preparation in the form of a device, compound, kit or service with utility in the diagnosis, prognosis, prediction or disease management of a disorder for any indication which contains, comprises or the process of development or manufacture of which utilises a CAT Licensable Antibody. The term "**Diagnostic Antibody Product**" shall not include any Research Product.

"**Dyax Therapeutic Antibody Product**" means any Therapeutic Antibody Product identified, generated or derived by Dyax for itself or its Affiliates but not a Therapeutic Antibody Product identified, generated or derived by Dyax for, or on behalf of, a Third Party.

"**Dyax Sublicensee**" means any sublicensee of Dyax under this Agreement.

"**Exploit**" means to make, have made, use, sell or import.

"**FDA**" means the United States Food and Drug Administration, the equivalent Competent Authority in any country of the Territory or any successor bodies thereto.

"**First Commercial Sale**" means the first commercial sale of any Product by Dyax or a Dyax Sublicensee (or its sublicensee) in any country after grant of a Marketing Authorisation.

"**Force Majeure**" means any event outside the reasonable control of either Party affecting its ability to perform any of its obligations (other than payment) under this Agreement, including Act of God, fire, flood, lightning, war, revolution, act of terrorism, riot or civil commotion, but excluding strikes, lock-outs or other industrial action, whether of the affected Party's own employees or others, failure of supplies of power, fuel, transport, equipment, raw materials or other goods or services.

"**GAAP**" means United States generally accepted accounting principles, consistently applied.

"**IDE**" means an Investigational Device Exemption application, as defined in Title 21 of the United States Code of Federal Regulations, filed with the FDA or an equivalent foreign filing.

"**IND**" means an Investigational New Drug Application, as defined in Title 21 of the United States Code of Federal Regulations, that is required to be filed with the FDA before beginning Phase I Clinical Trials of any Therapeutic Antibody Product in human subjects, or an equivalent foreign filing.

"**Major Mark**et" means any one of the following: (i) the United States of America, (ii) any country in Europe which is subject to the Marketing Authorisation procedure of the European Medicines Evaluation Agency, or (iii) Japan.

"**Marketing Authorisation**" means any approval (including all applicable pricing and governmental reimbursement approvals) required from the FDA or relevant Competent Authority to market and sell a Product in a particular country.

"**Net Sales**" means, with respect to a Product sold by Dyax or a Dyax Sublicensee (or its sublicensees) sold by Dyax or its sublicensee, the price invoiced by that party to the relevant purchaser (or in the case of a sale or other disposal otherwise than at arm's length, the price which would have been invoiced in a bona fide arm's length contract or sale) but deducting the costs of packing, transport and insurance, customs duties, any credits actually given for returned or defective Products, normal trade discounts actually given, and sales taxes, VAT or other similar tax charged on and included in the invoice price to the purchaser.

"**Party**" means CAT or Dyax.

"**Patent Rights**" means any patent applications and any patents issuing from such patent applications, author certificates, inventor certificates, utility certificates, improvement

patents and models, and certificates of addition and all counterparts of them throughout the Territory, including any divisional applications and patents, filings, renewals, continuations, continuations-in-part, patents of addition, extensions, reissues, substitutions, confirmations, registrations, revalidation and additions of or to any of them, as well as any supplementary protection certificates and equivalent protection rights in respect of any of them.

"**Pharmacia Agreement**" means the agreement between CAT and Pharmacia P-L Biochemicals Inc. dated 11 September 1991.

"**Pharmacia P-L Biochemicals Inc.**" means Pharmacia P-L Biochemicals Inc (now known as Amersham Biosciences).

"**Phase I Clinical Trial**" means a human clinical trial in any country that is intended to initially evaluate the safety of an investigational Product in volunteer subjects or patients that would satisfy the requirements of 21 CFR 312.21(a), or its foreign equivalent and may evaluate the Product's therapeutic or antigenic effects.

"**Phase III Clinical Trial**" means a pivotal human clinical trial in any country the results of which could be used to establish safety and efficacy of a Product as a basis for a marketing application that would satisfy the requirements of 21 CFR 312.21(c).

"**Primary Application**" means a major application of an Antibody against the Target as ascertained at the time of assessment using objective and reasonable scientific and/or commercial criteria, data and/or information. Primary Application shall not mean any minor or incidental application.

"**Product**" means a Diagnostic Antibody Product or a Therapeutic Antibody Product.

"**Product Licence**" means the licence granted to Dyax pursuant to Clause 2 of this Agreement.

"**Quarter**" means each period of three (3) months ending on March 31, June 30, September 30, or December 31 and "**Quarterly**" shall be construed accordingly.

"**Research Products**" means any product in relation to which Pharmacia P-L has an exclusive licence from CAT pursuant to the Pharmacia Agreement.

"**Single Domain Antibodies**" means an Antibody containing only a single domain (heavy or light).

"**Status Report**" has the meaning set forth in Clause 4.1.

"**Target**" means , as set out in Schedule 3.

"**Territory**" means all countries of the world.

"**Therapeutic Antibody Product**" means any preparation for the treatment or prevention of disease, infection or other condition in humans for any indication which contains, comprises, or the process of development or manufacture of which utilises, a CAT Licensable Antibody. The term "**Therapeutic Antibody Product**" shall not include any Research Product.

"**Third Party**" means any entity or person other than Dyax, CAT or their respective Affiliates.

"**Valid Claim**" means a claim of an issued and unexpired patent included within the Antibody Phage Display Patents which have been licensed to CAT by the MRC which has not been held permanently revoked, unenforceable or invalid by a decision of a court or other governmental agency of competent jurisdiction unappealed within the time allowed for appeal, and which has not been admitted to be invalid or unenforceable through reissue or disclaimer or otherwise.

"**Year**" means initially the period from the Commencement Date to the end of that calendar year, and subsequently a calendar year.

1.2 The headings to clauses are inserted for convenience only and shall not affect the interpretation or construction of this Agreement.

1.3 Words imparting the singular shall include the plural and vice versa. References to persons include an individual, company, corporation, firm or partnership.

1.4 The words and phrases "other", "including" and "in particular" shall not limit the generality of any preceding words or be construed as being limited to the same class as any preceding words where a wider construction is possible.

1.5 References to any statute or statutory provisions of the United Kingdom shall include (i) any subordinate legislation made under it, (ii) any provision which it has superseded or re-enacted (whether with or without modification), and (iii) any provision which subsequently supersedes it or re-enacts it (whether with or without modification. References to any statute or regulation of the United States of America means that statute or regulation as it may be amended, supplemented or otherwise modified from time to time, and any successor statute or regulation.

2. Grant of Product Licence

2.1 Subject to Clause 2.4 below, CAT hereby grants to Dyax and its Affiliates a non-exclusive, royalty-bearing licence (on the terms of this Agreement) with the right to sublicense (on the terms of Clause 3) under the Antibody Phage Display Patents and CAT Know-How to Exploit Products against the Target in the Territory.

2.2 The Product Licence granted under this Agreement is pursuant to Dyax's exercise of one (1) option under the Amendment Agreement.

2.3 For the avoidance of doubt, no rights are granted by CAT under this Agreement to any CAT Diabodies Patent Rights, and any Patent Rights owned or controlled by CAT which claim Catalytic Antibodies, ribosome display technology, any Patent Rights which claim Single Domain Antibodies and no rights are granted by CAT in this Agreement under the Antibody Phage Display Patents to Exploit Research Products.

2.4 This Product Licence shall come into effect upon the date that the Acceptance Fee is received by CAT. The Acceptance Fee shall not be refundable or creditable against any other sums which may be payable by Dyax or a Dyax Sublicensee to CAT pursuant to this Agreement.

3. Sub-Licensing

3.1 Dyax will, if requested by CAT, inform CAT of the identity of all Dyax Sublicensees (and their sublicensees) in relation to this Agreement.

3.2 Dyax (and where relevant each Dyax Sublicensee) will ensure that any sublicensee (to which it sublicences its rights in accordance with the terms of this Agreement) executes a written agreement which requires the sublicensee to abide by the terms of this Agreement.

3.3 Dyax (and where relevant each Dyax Sublicensee) will be liable for any breach of the sublicences granted in accordance with Clause 3.2; provided, however, that Dyax's liability for such breach by a sublicensee shall be limited to the amount that has been received or is thereafter received by Dyax directly or indirectly from such sublicensee pursuant to the sublicense agreement; and provided, further, that any written agreement with a sublicensee shall contain a provision pursuant to which CAT shall be a third party beneficiary of such sublicence agreement and shall have the right to enforce (including claim damages as a result of any breach) such sublicence agreement. If at any time CAT does have to enforce its rights under a sublicence agreement Dyax will, if requested by CAT, supply to CAT a copy of the relevant sublicence as soon as possible. For the avoidance of doubt, sublicensing by Dyax to a Dyax Sublicensee is permitted as is sublicensing by a Dyax Sublicensee to a sublicensee. No further sublicensing of the rights and obligations under this Agreement is permitted.

4. Status Report

4.1 Dyax will provide to CAT a brief summary of the status of each Product against the Target that Dyax or Dyax Sublicensees desire to Exploit under this Agreement ("Status Report"). During the Term, Dyax will submit such Status Report to CAT for a particular Product prior to the time Dyax or Dyax Sublicensees begin the first human clinical trial with respect to such Product. [**].

5. Gatekeeping

5.1 The Parties acknowledge that, as of the Commencement Date, the Target has passed CAT's Gatekeeping Procedure under the Amendment Agreement.

6. Consideration

6.1 Therapeutic Antibody Products

6.1.1 With respect to Therapeutic Antibody Products, Dyax shall pay to CAT the following payments upon achievement of the specified milestones by Dyax or a Dyax Sublicensee (or its sublicensee) for the first Therapeutic Antibody Product to achieve the relevant milestone:

Initiation of first Phase I Clinical Trial	US $
Initiation of first Phase III Clinical Trial	US $
First filing for Marketing Authorisation in one Major Market country	US $
Marketing Authorisation granted in the United States	US $

6.1.2 With respect to Therapeutic Antibody Products, Dyax shall pay CAT royalties in an amount equal to percent (%) of Net Sales of the Therapeutic Antibody Product sold by or on behalf of Dyax or the Dyax Sublicensee.

6.2 Diagnostic Products

6.2.1 With respect to Diagnostic Antibody Products, Dyax shall pay to CAT the following payments upon achievement by Dyax or a Dyax Sublicensee (or its sublicensee) of the milestones set out below. For the avoidance of doubt the milestone payments shall be payable in respect of the first Diagnostic Antibody Product to achieve the relevant milestone:

First filing for Marketing Authorisation in one Major Market country	US $
Marketing Authorisation granted in each Major Market Country	US $

6.2.2 With respect to Diagnostic Antibody Products, Dyax shall pay CAT royalties on a country-by-country basis in an amount equal to percent (%) of Net Sales of Diagnostic Antibody Products sold by or on behalf of Dyax or any Dyax Sublicensee.

6.3 All royalties due to CAT pursuant to Clauses 6.1.2 and 6.2.2 shall be payable on a country-by-country basis until the last Valid Claim expires or ten (10) years from the date of First Commercial Sale of such Product, whichever occurs later.

7. Provisions Relating to Payment of Consideration

7.1 All milestone payments shall be paid by Dyax within [**] days of the applicable milestone being achieved and no milestone payments shall be refundable or creditable against any other sum payable by Dyax hereunder for any reason.

7.2 Dyax shall make the payments due to CAT under Clause 6 above in United States dollars (if Dyax in turn receives payment in dollars) or in pounds sterling (if Dyax in turn receives payment in pound sterling), or Euros (if Dyax in turn receives payment in Euros). Where Dyax receives payment in a currency other than United States dollars, pounds sterling or Euros, Dyax will convert the relevant sum into pounds sterling (or Euros if Euros have replaced pounds sterling at the time of payment). Dyax will use the conversion rate reported in the Financial Times two (2) Business Days before the day on which Dyax pays CAT. Such payment will be made without deduction of exchange, collection or other charges. All payments will be made at Quarterly intervals. Within [**] days of the end of each Quarter after the First Commercial Sale of each Product in any country, Dyax shall prepare a statement which shall show on a country-by-country basis for the previous Quarter Net Sales of each Product by Dyax or its Affiliates and all monies due to CAT based on such Net Sales. That statement shall include details of Net Sales broken down to show the country of the sales and the total Net Sales by Dyax or its Affiliates in such country and shall be submitted to CAT within such [**] day period together with remittance of the monies due. With respect to Net Sales of a Product by a Dyax Sublicensee (or its sublicensee) Dyax shall prepare a statement which will include the same information and remit that statement and any monies due within the same period except with regard to any Dyax Sublicensee with which Dyax has a licence agreement relating to the technology of Antibody phage display as of the Commencement Date where the remittance will be made at Quarterly intervals within [**] days of the date royalties are due to Dyax from such existing Dyax Sublicensees.

7.3 All payments shall be made free and clear of and without deduction or deferment in respect of any disputes or claims whatsoever and/or as far as is legally possible in respect of any taxes imposed by or under the authority of any government or public authority. [**].

7.4 Dyax shall keep and shall procure that its Affiliates and Dyax Sublicensees keep true and accurate records and books of account containing all data necessary for the calculation of the amounts payable by it to CAT pursuant to this Agreement. Those records and books of account shall be kept for seven (7) years following the end of the Year to which they relate. Upon CAT's written request, a firm of accountants appointed by agreement between the Parties or, failing such agreement within ten (10) Business Days of the initiation of discussions between them on this point CAT shall have the right to cause an international firm of independent certified public accountants that has not performed auditing or other services for either Party or their Affiliates (or, if applicable, any Dyax Sublicensee with rights to the Product in question) acceptable to Dyax or the Dyax Sublicensee such acceptance not to be unreasonably withheld to inspect such records and books of account. In particular such firm:

7.4.1 shall be given access to and shall be permitted to examine and copy such books and records of Dyax and its Affiliates and Dyax Sublicensees upon twenty (20) Business Days notice having been given by CAT and at all reasonable times on Business Days for the purpose of certifying that the Net Sales or other relevant sums calculated by Dyax and its Affiliates and Dyax Sublicensees during any

Year were reasonably calculated, true and accurate or, if this is not their opinion, certify the Net Sales figure or other relevant sums for such period which in their judgment is true and correct;

7.4.2 prior to any such examination taking place, such firm of accountants shall undertake to Dyax that they shall keep all information and data contained in such books and records, strictly confidential and shall not disclose such information or copies of such books and records to any third person including CAT, but shall only use the same for the purpose of calculations which they need to perform in order to issue the certificate to which this Clause envisages;

7.4.3 any such access examination and certification shall occur no more than once per Year and will not go back over records more than two (2) years old;

7.4.4 Dyax and its Affiliates and Dyax Sublicensees shall make available personnel to answer queries on all books and records required for the purpose of that certification; and

7.4.5 the cost of the accountant shall be the responsibility of Dyax if the certification shows it to have underpaid monies to CAT by more than [**] and the responsibility of CAT otherwise.

7.5 All payments due to CAT under the terms of this Agreement are expressed to be exclusive of value added tax (VAT) howsoever arising. [**].

7.6 All payments made to CAT under this Agreement shall be made to the bank account of CAT as notified by CAT to Dyax from time to time.

7.7 If Dyax fails to make any payment to CAT hereunder on the due date for payment, without prejudice to any other right or remedy available to CAT it shall be entitled to charge Dyax interest (both before and after judgment) of the amount unpaid at the annual rate of LIBOR (London Interbank Offering Rate) plus [**] calculated on a daily basis until payment in full is made without prejudice to CAT's right to receive payment on the due date.

8. Confidentiality

8.1 With respect to any confidential information received from the other Party ("Confidential Information"), each Party undertakes and agrees to:

(a) only use the Confidential Information for the purposes envisaged under this Agreement and not to use the same for any other purpose whatsoever;

(b) ensure that only those of its officers and employees who are directly concerned with the carrying of this Agreement have access to the Confidential Information on a strictly "need to know" basis and are informed of the secret and confidential nature of it;

(c) keep the Confidential Information secret, confidential, safe and secure and shall not directly or indirectly disclose or permit to be disclosed the same to any Third Party, including any consultants or other advisors, without the prior written consent of the disclosing Party except to the extent disclosure is necessary in connection with its use as envisaged under this Agreement;

(d) ensure that the Confidential Information will not be covered by any lien or other encumbrance in any way, and

(e) not copy, reproduce or otherwise replicate for any purpose or in any manner whatsoever any documents containing the Confidential Information except to the extent necessary in connection with its use as envisaged under this Agreement.

For the avoidance of doubt, the Parties agree that the identity of the Target, any information related to the Target provided to CAT by Dyax, and the Status Report is the Confidential Information of Dyax.

8.2 The obligations referred to in Clause 8.1 above shall not extent to any Confidential Information which:

(a) is or becomes generally available to the public otherwise than be reason of breach by a recipient Party of the provision of Clause 8.1;

(b) is known to the recipient Party and is at its free disposal (having been generated independently by the recipient Party or a Third Party in circumstances where it has not been derived directly or indirectly from the disclosing Party's Confidential Information prior to its receipt from the disclosing Party), provided that evidence of such knowledge is furnished by the recipient Party to the disclosing Party within twenty-eight (28) days of recipient of that Confidential Information;

(c) is subsequently disclosed to the recipient Party without obligations of confidence by a Third Party owing no such obligations to the disclosing Party in respect of that Confidential Information;

(d) is required by law to be disclosed (including as part of any regulatory submission or approval process) and then only when prompt written notice of this requirement has been given to the disclosing Party so that it may, if so advised, seek appropriate relief to prevent such disclosure, provided always that in such circumstances such disclosure shall be only to the extent so required and shall be subject to prior consultation with the disclosing Party with a view to agreeing on the timing and content of such disclosure.

8.3 No public announcement or other disclosures to Third Parties concerning the terms of this Agreement shall be made, whether directly or indirectly, by either Party (except confidential disclosures to professional advisors) without first obtaining the approval of

the other Party and agreement upon the nature and text of such announcement or disclosure with the exceptions that:

(a) a Party may disclose those terms which it is required by regulation or law to disclose, provided that it takes advantage of all provisions to keep confidential as many terms of this Agreement as possible; and

(b) the Party desiring to make any such public announcement or other disclosure shall inform the other Party of the proposed announcement or disclosure in reasonably sufficient time prior to public release, and shall provide the other Party with a written copy thereof in order to allow such Party to comment upon such announcement or disclosure. Each Party agrees that it shall cooperate fully with the other with respect to all disclosures regarding this Agreement to the U.S. Securities Exchange Commission, the UK Stock Exchange and any other comparable body including requests for confidential information or proprietary information of either Party included in any such disclosure.

9. Indemnification

9.1 Dyax and hereby indemnifies CAT and its Affiliates and their directors, officers, employees and agents and their respective successors, heirs and assigns (the "CAT Indemnitees") against any liability, damage, loss or expense (including attorneys fees and expenses of litigation) incurred by or imposed upon the CAT Indemnitees or any one of them in connection with any claims, suits, actions, demands or judgments by or in favour of any

Third Party concerning any manufacture, use or sale of any Product by Dyax or any Dyax Sublicensee (or their sublicensee). In addition, each Dyax Sublicensee (or their sublicensee) shall indemnify the CAT Indemnitees against any liability, damage, loss or expense (including attorneys fees and expenses of litigation) incurred by or imposed upon the CAT Indemnitees or any one of them in connection with any claims, suits, actions, demands or judgments by or in favour of any Third Party concerning any manufacture, use or sale of any Product by such Dyax Sublicensee (or their sublicensee).

9.2 CAT shall not be liable to Dyax and Dyax Sublicensee (or its sublicensee) in respect of any liability, loss, damage or expense (including attorneys fees and expenses of litigation) incurred or suffered by Dyax and Dyax Sublicensees (or its sublicensee) in connection with the manufacture, use or sale of any Products by Dyax and Dyax Sublicensees (or its sublicensee).

9.3 CAT gives no warranty or representation that the Antibody Phage Display Patents are, or will be, valid or that the exercise of the rights granted under this Agreement will not result in the infringement of patents of Third Parties.

10. Infringement and Patent Prosecution

10.1 Dyax shall notify CAT promptly of any proceedings or applications for revocation of any of the Antibody Phage Display Patents emanating from a Third Party that comes to its notice or if a Third Party takes or threatens to take any proceedings for infringement of

any patents of that Third Party by reason of Dyax's use or operation of the Antibody Phage Display Patents or manufacture, use or sale of the Products. Dyax shall notify CAT promptly of any infringement of the Antibody Phage Display Patents by a Third Party which may come to its attention during the term of the Product Licence, except Dyax shall have no obligation to so notify CAT with respect to any infringement by an academic or not-for-profit entity which occurs by reason of such entity carrying out research activities provided such activities are, as far as Dyax is aware, not being carried out with a view to commercialising a product or otherwise for profit.

10.2 CAT shall have the sole right and responsibility, at its sole discretion and cost and with reasonable assistance from Dyax, to file, prosecute and maintain the Antibody Phage Display Patents and for the conduct of any lawsuits, claims or proceedings challenging the validity or enforceability thereof including, without limitation, any interference or opposition proceeding relating thereto in all countries. For the avoidance of doubt, Dyax and Dyax Sublicensees will have the right to conduct any proceedings relating to its Product including any proceedings relating to product liability.

11. Termination

11.1 Unless terminated under this Clause 11, this Agreement shall commence on the Commencement Date and shall terminate, on a country-by-country and Product-by-Product basis upon the last to expire of claims of an issued and unexpired patent within the Antibody Phage Display Patents (which has not been held permanently revoked, unenforceable or invalid by a decision of a court or other governmental agency of competent jurisdiction unappealed within the time allowed for appeal, and which has not been admitted to be invalid or unenforceable through reissue or disclaimer or otherwise) or (b) the date upon which no payments are due to CAT under Clause 6 of this Agreement, whichever occurs later.

11.2 CAT shall have the right to terminate this Agreement in the event that:

11.2.1 Dyax or a Dyax Sublicensee (or its sublicensee) has not filed an IND for a Therapeutic Antibody Product, or a 510(k) or IDE for a Diagnostic Antibody Product within [**] after the Commencement Date; or

11.2.2 Dyax or a Dyax Sublicensee (or its sublicensee) directly or indirectly opposes or assists any Third Party to oppose the grant of letters patent or any patent application within the Antibody Phage Display Patents, or disputes or directly or indirectly assists any Third Party to dispute the validity of any patent within the Antibody Phage Display Patents or any of the claims thereof.

11.3 In the event that either Party commits a material breach of any of its material obligations with respect to this Agreement, and such Party fails to remedy that breach within ninety (90) days after receiving written notice thereof from the other Party, that other Party may immediately terminate this Agreement upon written notice to the breaching Party.

11.4 Either Party may terminate this Agreement in its entirety by giving notice in writing to the other Party if any one or more of the following events happens:

(a) the other Party has any distress or execution levied on the major portion of its assets (as determined by its balance sheet in accordance with GAAP) which is not paid out within thirty (30) days of its being levied;

(b) the other Party calls a meeting for the purpose of passing a resolution to wind it up, or such a resolution is passed, or the other Party presents, or has presented, a petition for a winding up order, or presents, or has presented, a petition to appoint an administrator, or has an administrative receiver, or receiver, liquidator or other insolvency practitioner appointed over all or any substantial part of its business, undertaking, property or assets;

(c) the other Party stops or suspends making payments (whether of principal or interest) with respect to substantially all of its debts or announces an intention to do so or the other Party suspends or ceases to carry on its business;

(d) a secured lender to the other Party holding a security interest over the major portion of the tangible assets (as determined by its balance sheet in accordance with GAAP) of such other Party takes any steps to obtain possession of the property on which it has security or otherwise to enforce its security;

(e) the other Party suffers or undergoes any procedure analogous to any of those specified in Clause 11.4(a)-(d) above or any other procedure available in the country in which the other Party is constituted, established or domiciled against or to an insolvent debtor or available to the creditors of such a debtor.

12. Consequences of Termination

12.1 Upon termination of this Agreement for any reason whatsoever:

(a) the relationship of the Parties hereunder shall cease save as (and to the extent) expressly provided for in this Clause 12;

(b) any sublicenses granted by Dyax in accordance with the terms of this Agreement will continue in force provided that such sublicensees are not in breach of the relevant sublicense and that each sublicensee agrees to enter into a direct agreement with CAT upon the terms of this Agreement;

(c) Dyax shall immediately return or procure to be returned to CAT at such place as it directs and at the expense of Dyax (or if CAT so requires by notice to Dyax in writing, destroy) all CAT Know-How together with all copies of such CAT Know-How in its possession or under its control;

(d) The following provisions shall survive expiration or termination of this Agreement: Clauses 7 (in relation to any accrued payment obligations of Dyax prior to termination or expiry), 8, 9, 12, 13 and 15; and

(e) Expiry or termination of this Agreement shall not affect the rights and obligations of the Parties accrued prior to such expiry or termination including any accrued obligation for Dyax to make any payments under Clause 6.

13. Dispute Resolution

13.1 Any dispute arising between the Parties relating to, arising out of or in any way connected with this Agreement or any term or condition thereof, or the performance by either Party of its obligations hereunder, whether before or after termination of this Agreement, shall be referred to the Chief Executive Officers of each of the Parties. The Chief Executive Officers shall meet to resolve such deadlock within thirty (30) days of the date that the dispute is referred to them, at a time and place mutually acceptable to them. Any dispute that has not been resolved following good faith negotiations of the Chief Executive Officers for a period of thirty (30) days shall be referred to and finally settled by binding arbitration in accordance with the then current Commercial Arbitration Rules of the American Arbitration Association. There shall be three (3) arbitrators, each Party to designate one arbitrator and the two Party-designated arbitrators to select the third arbitrator. The Party initiating recourse to arbitration shall include in its notice of arbitration its appointment of an arbitrator. The appointing authority, in the event a Party does not or the Parties do not appoint arbitrator(s), shall be the American Arbitration Association in [**]. The place of arbitration shall be [**]. The language to be used in the arbitration shall be English. Any determination by the arbitration panel shall be final and conclusively binding. Judgement on any arbitration award may be entered in any court having jurisdiction thereof. Each Party shall bear its own costs and expenses incurred in the arbitration; provided that the arbitration panel may assess the costs and expenses of the prevailing Party, including reasonable attorneys fees, against the non-prevailing Party.

14. Notices

14.1 All notices, requests, demands and other communications required or permitted to be given pursuant to this Agreement shall be in writing and shall be deemed to have been duly given upon the date of receipt if delivered by hand, recognized international overnight courier, confirmed facsimile transmission, or registered or certified mail, return receipt requested, postage prepaid to the following addresses or facsimile numbers:

If to Dyax:
Dyax Corp
300 Technology Square
Cambridge, MA 02139
Attention: Chief Executive Officer
Facsimile: (617) 225-2501

If to CAT:
Cambridge Antibody Technology Limited
The Milstein Building
Granta Park, Cambridge
Cambridgeshire CB1 6GH
United Kingdom
Attention: Company Secretary

Facsimile: 011-44-(0)1223 471472

Either party may change its designated address and facsimile number by notice to the other party in the manner provided in this Clause.

15. Governing Law

15.1 This Agreement shall be governed by and construed in accordance with the laws of the [**].

15.2 Save as provided in this Clause, the United Kingdom Legislation entitled the Contracts (Rights of Third Parties) Act 1999 will not apply to this Agreement. No person, other than a CAT Indemnitee (as defined in Clause 9.1), who is not a Party to this Agreement (including any employee, officer, agent, representative or subcontractor of either Party) will have the right (whether under the Contracts (Rights of Third Parties) Act 1999 or otherwise) to enforce any term of this Agreement which expressly or by implication confers a benefit on that person without the express prior agreement in writing of the Parties which agreement must refer to this Clause, except that any Dyax Sublicensee shall have the right to enforce the provisions of Clause 12.1(b) of this Agreement and shall be a third party beneficiary for that purpose only.

16. Specific Performance

16.1 The parties agree that irreparable damage will occur in the event that the provisions of Clause 8 are not specifically enforced. In the event of a breach or threatened breach of any such provisions, each Party agrees that the other Party shall, in addition to all other remedies, be entitled to temporary or permanent injunction, without showing any actual damage or that monetary damages would not provide an adequate remedy and without the necessity of posting any bond, and/or a decree for specific performance, in accordance with the provisions hereof.

17. Assignment

17.1 This Agreement may not be assigned by either party without the prior written consent of the other party, except that either Party may assign the benefit and/or burden of this Agreement to any Affiliate of it or any Third Party, provided that such Affiliate or Third Party undertakes to the other Party to be bound by the terms of this Agreement. This Agreement shall inure to the benefit of and be binding upon the parties and their respective lawful successors and assigns.

18. Compliance With Law

18.1 Nothing in this Agreement shall be construed so as to require the commission of any act contrary to law, and wherever there is any conflict between any provision of this Agreement and any statute, law, ordinance, or treaty, the latter shall prevail, but in, such event the affected provisions of the Agreement shall be conformed and limited only to the extent necessary to bring it within the applicable legal requirements.

19. Amendment and Waiver

19.1 This Agreement may be amended, supplemented, or otherwise modified only by means of a written instrument signed by both parties. Any waiver of any rights or failure to act in a specific instance shall relate only to such instance and shall not be construed as an agreement to waive any rights or fail to act in any other instance, whether or not similar.

20. Severability

20.1 In the event that any provision of this Agreement shall, for any reason, be held to be invalid or unenforceable in any respect, such invalidity or unenforceability shall not affect any other provision hereof and the parties shall negotiate in good faith to modify the Agreement to preserve (to the extent possible) their original intent.

21. Entire Agreement

21.1 This Agreement and the Amendment Agreement constitute the entire agreement between the parties with respect to the subject matter hereof and supersede all prior agreements or understandings between the parties relating to the subject matter hereof.

IN WITNESS OF THE ABOVE the Parties have signed this Agreement on the date written at the head of this Agreement.

SIGNED by)
)
)
for and on behalf of) General Counsel & Authorised
CAMBRIDGE ANTIBODY) Signatory
TECHNOLOGY LIMITED)

SIGNED by)
)
)
for and on behalf of) Senior Vice President &
DYAX CORP.) Authorised Signatory
)

APPENDIX E

DYAX PATENT RIGHTS

PHAGE DISPLAY PATENT RIGHTS — [**]

Country	Application/ Publication No.	Filing Date	Patent No.	Issue Date
[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]		
[**]	[**]	[**]		
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[**]	[**]	[**]	[**]	[**]
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[**]	[**]	[**]	[**]	[**]
[**]	[**]	[**]		
[**]	[**]	[**]		[**]
[**]	[**]	[**]		
[**]	[**]	[**]		
[**]	[**]	[**]		

Novel [**] Fragments - [**] et al.

Country	Application/ Publication No.	Filing Date	Patent No.	Issue Date
[**]	[**]	[**]		
[**]	[**]	[**]		
[**]	[**]	[**]		
[**]		[**]		
[**]	[**]	[**]		
[**]	[**]	[**]		

CJ Library — [**] et al.

Country	Application/ Publication No.	Filing Date	Patent No.	Issue Date
[**]	[**]	[**]		
[**]	[**]	[**]		
[**]	[**]	[**]		
[**]	[**]	[**]		
[**]	[**]	[**]		
[**]	[**]	[**]		
[**]	[**]	[**]		
[**]	[**]	[**]		

Antibody Reformatting Patents

Country	Application/ Publication No.	Filing Date	Patent No.	Issue Date
[**]	[**]	[**]		
[**]	[**]	[**]		

APPENDIX F

[**] PATENT RIGHTS

[**]

A total of three pages were omitted and filed separately with the Securities and Exchange Commission pursuant to a request for confidential treatment.

APPENDIX G

XOMA NOTICE

XOMA owns a number of patents covering various aspects of bacterial antibody expression and phage display.

XOMA has licensed these patents on a non-exclusive basis to Dyax.

Under the license agreement with XOMA:

· Dyax cannot provide phage display services or transfer phage display materials, products or information to you without first showing you a redacted copy of its license from XOMA and this notice.

· If you and Dyax enter into a written agreement by which you become a "Dyax Collaborator," then you will be permitted to use Dyax phage display services, Dyax phage display materials, products and information to research, develop and commercialize antibody products.

· Collaborators do not, however, have the right to produce commercial quantities of such antibodies using XOMA's patented technology. Rather, collaborators only have the right to make research and development quantities of antibodies using the XOMA patent rights. Thereafter, unless the collaborator obtains a commercial production license from XOMA (which may be available), the collaborator must produce commercial quantities of antibodies using a method that does not infringe XOMA patent rights.

Therefore, if you and Dyax enter into a written agreement, that agreement must contain certain provisions specified in the license agreement with XOMA, including:[**]Terms pursuant to which you, as the recipient of any transferred materials, would agree to abide by each of the limitations, restrictions and other obligations provided for by the license agreement with XOMA, including, without limitation, the restrictions on use of such transferred materials for purposes other than research and development.

A covenant not to use transferred materials for any purpose other than for research and development purposes otherwise authorized by the license agreement with XOMA.

A provision that the "first sale" doctrine does not apply to any disposition of transferred materials.

An agreement by you to further dispose of transferred materials only to a third party who otherwise meets the definition of a "Dyax Collaborator" set forth in the license agreement with XOMA and who executes a written agreement in which it undertakes all of the obligations applied to the transferring party.

APPENDIX H

SUBLICENSE AGREEMENT

This SUBLICENSE AGREEMENT ("Sublicense"), dated effective as of , 20 (the "Effective Date"), is entered into between **DYAX CORP.**, a Delaware corporation, of 300 Technology Square, Cambridge, Massachusetts 02139 ("Dyax"), and of ("Sublicensee").

WHEREAS, under the terms of that certain Amendment Agreement by and between Dyax and Cambridge Antibody Technologies Limited ("CAT"), dated January 3, 2003, as amended to date (the "Amended Agreement") Dyax has the right to obtain product licenses, on a target-by-target basis, to develop and commercialize therapeutic and diagnostic antibody products identified using CAT's proprietary technology and know-how;

WHEREAS, Dyax and CAT have executed one such product license, under which CAT granted Dyax rights to develop and commercialize therapeutic and diagnostic antibody products to the target described on Attachment A (the "Product License");

WHEREAS, a redacted version of the Product License is attached hereto as Attachment B;

WHEREAS, pursuant to a Collaboration Agreement by and between Dyax and Sublicensee, dated effective , 20 , (the "Collaboration Agreement"), Sublicensee has the right to obtain through Dyax a sublicense of the Product License; and

WHEREAS, Sublicensee desires to obtain through Dyax a sublicense of the Product License.

NOW THEREFORE, in consideration of the premises and the mutual covenants contained herein, and for other good and valuable consideration, the receipt of which is hereby acknowledged, the parties agree as follows:

1. GRANT OF SUBLICENSE.

Subject to the terms and conditions set forth in Section 2 of this Sublicense, Dyax hereby grants to Sublicensee a world-wide, non-exclusive license of the rights granted to it under Clause 2.1 of the Product License. Sublicensee is permitted to sublicense its rights under this Sublicense in accordance with the terms and conditions set forth in Clauses 3.2 and 3.3 of the Product License.

2. SUBLICENSEE OBLIGATIONS.

2.1 Obligations Under Product License. Sublicensee agrees to abide by all of the terms and conditions applicable to Dyax and/or Sublicensee (as a Dyax Sublicensee) under the Product License and agrees that all obligations of Dyax to CAT under the Product License shall also be obligations of Sublicensee to Dyax, except for (i) any obligations of Dyax contained in Clause 6 (Consideration) and Clause 7 (Provisions Relating to the Payment of Consideration) of

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the Product License and (ii) any portion of the Product License that has been redacted by Dyax. Notwithstanding the foregoing, Sublicensee's obligations pursuant to this Section 2.1 are conditional upon (i) Sublicensee receiving timely notice (in the manner provided in Section 10.2 of the Collaboration Agreement) from Dyax relating to (a) any change in such terms and conditions, and (b) any notice, claim or demand made by CAT under the Product License; and (ii) the parallel performance of Dyax to the extent both parties are required to perform to satisfy the obligations of Dyax or Sublicensee (as a Dyax Sublicensee) under the Product License.

2.2 Obligations Under Collaboration Agreement. Sublicensee acknowledges and agrees that all of the terms and conditions contained in the Collaboration Agreement, as amended to date, remain in full force and effect, and Sublicensee agrees to abide by all of its obligations set forth thereunder.

2.3 Royalties. Notwithstanding anything to the contrary contained in the Product License, the sublicense granted to Sublicensee under Section 1 of this Sublicense shall be royalty bearing in accordance with the terms set forth in the Collaboration Agreement.

3. DYAX OBLIGATIONS.

3.1 Obligations Under Collaboration Agreement. Dyax acknowledges and agrees that all of the terms and conditions contained in the Collaboration Agreement, as amended to date, remain in full force and effect, and Dyax agrees to abide by all of its obligations set forth thereunder.

3.2 Amendment to Product License. Dyax agrees that it shall not amend the Product License in any way that materially and adversely affects or reduces the rights and licenses granted to Sublicensee under this Sublicense.

3.3 Indemnification for Dyax Breach. Dyax shall indemnify and hold Sublicensee and its officers, directors and agents ("Sublicensee Indemnified Parties") harmless from and against any liability or loss incurred by the Sublicensee Indemnified Parties to CAT under the Product License, to the extent that such liability was incurred by Sublicensee as a result of a breach of the Product License by Dyax.

4. TERM AND TERMINATION.

This Sublicense shall expire upon expiration of the Product License and shall terminate upon termination of the Product License; provided that, at Sublicensee's election, upon termination of the Product License, Sublicensee's rights hereunder will continue in force provided that Sublicensee is not in breach of this Sublicense and agrees to enter into a direct agreement with CAT upon the terms of the Product License.

5. MISCELLANEOUS.

CAT shall be a third party beneficiary of this Sublicense and shall have the right to enforce its terms (and claim damages as a result of any breach). This Sublicense shall be not be assignable by Sublicensee, except that Sublicensee may assign the benefit and/or burden of this Sublicense to any Affiliate of it or any Third Party ("Affiliate" and "Third Party" being defined

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in the Collaboration Agreement), provided that such Affiliate or Third Party undertakes to Dyax to be bound by the terms of this Sublicense. This Sublicense shall be binding upon, and shall inure to the benefit of, the parties hereto and their successors and assigns. This Sublicense may be not be amended except pursuant to a written instrument signed by parties hereto. No provisions of this Sublicense may be waived except by an instrument in writing signed by the party sought to be bound. Neither this Sublicense nor any part hereof, including this provision against oral modifications, may be modified, waived or discharged except pursuant to a written agreement signed by both parties.

IN WITNESS WHEREOF, the parties have caused this Sublicense to be executed by their respective duly authorized representatives as of the Effective Date.

DYAX CORP.	**SUBLICENSEE:**
By: _____	By: _____

AMENDMENT

This Amendment (this "Amendment"), effective as of July 31, 2008, amends the Amended and Restated Collaboration Agreement effective as of January 24, 2007 (the "Agreement"), between **DYAX CORP.**, a Delaware corporation ("Dyax"), and **MERRIMACK PHARMACEUTICALS, INC.**, a Massachusetts corporation ("Merrimack"). Capitalized terms used herein and not defined herein shall have the meanings ascribed to them in the Agreement.

WHEREAS, the Parties have agreed to amend the definition of Commercial Field;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby amend the Agreement as follows:

1. Section 1.8 of the Agreement is hereby amended and restated in its entirety to read as follows:

"1.8 "Commercial Field" means all human therapeutic and diagnostic uses, excluding (i) Research Products and (ii) Separations Applications."

2. As amended hereby, the Agreement remains in full force and effect.

IN WITNESS WHEREOF, the undersigned have duly executed and delivered this Amendment as a sealed instrument effective as of the date first above written.

DYAX CORP.	**MERRIMACK PHARMACEUTICALS, INC.**
By: /s/ Gustav Christensen	By: /s/ Edward J. Stewart
Title: EVP & Chief Business Officer	Title: Vice President, Bus. Dev.
Date: July 31, 2008	Date: July 17, 2008

/s/ Lisa A. Evren

SVP & CFO

Lisa A. Evren

7/17/08

AMENDMENT

This Amendment (this "Amendment"), effective as of November 6, 2009, further amends the Amended and Restated Collaboration Agreement, dated effective as of January 24, 2007 and previously amended on July 31, 2008 (the "Amended Agreement"), between **DYAX CORP.**, a Delaware corporation ("Dyax"), and **MERRIMACK PHARMACEUTICALS, INC.**, a Massachusetts corporation ("Merrimack"). Capitalized terms used herein and not defined herein shall have the meanings ascribed to them in the Amended Agreement.

WHEREAS, the Parties wish to amend the Amended Agreement to clarify certain intellectual property issues that have arisen in the course of the collaboration.

NOW, THEREFORE, in consideration of the foregoing and the covenants and premises contained in the Amended Agreement, the Parties hereby agree to the following amendments:

AMENDMENTS

1. Article 1.33 of the Amended Agreement is hereby amended and restated in its entirety to read as follows:

1.33 "Patent Rights" means patent applications or patents, author certificates, inventor certificates, utility certificates, improvement patents, and models and certificates of addition, and all foreign counterparts of them and includes, provisionals, divisionals, renewals, continuations, continuations-in-part, extensions, reissues, substitutions, confirmations, registrations, revalidations, or additions of or to them as well as any supplementary protection certificate or any other post patent expiration extension of patent protection in respect to them.

2. Article 5 of the Amended Agreement is hereby amended and restated in its entirety to read as follows:

ARTICLE V
INTELLECTUAL PROPERTY

5.1 Ownership.

(a) Dyax Antibodies and Dyax Antibody Information. Subject to the licenses granted to Merrimack in Section 3.1 and the rights granted in Section 5.3, Dyax is and shall remain the owner of all Dyax Antibodies that are identified, generated, developed, produced, optimized, or obtained by Dyax from the Dyax Libraries in connection with the Research Program, together with the Dyax Antibody Information applicable thereto.

(b) Dyax Libraries. Dyax is and shall remain the owner of the Dyax Libraries and all improvements thereon developed during the term of this Agreement.

(c) Dyax Research Materials and Dyax Research Know-How. Subject to the licenses granted to Merrimack in this Agreement, Dyax is and shall remain the owner of the Dyax Research Materials and Dyax Research Know-How generated or utilized during the conduct of the Research Program.

(d) Merrimack Targets and Merrimack Materials. Merrimack is and shall remain the owner of Merrimack Targets and Merrimack Materials.

5.2 Inventions.

(a) Inventorship. Inventorship will be determined in accordance with United States patent laws.

(b) Inventions. The Parties acknowledge and agree that, regardless of inventorship:

(i) Dyax shall hold title to:

(A) any invention or other subject matter directed to a composition of matter comprising the [**] that were delivered by Dyax to Merrimack

(B) any invention or other subject matter relating to [**], and

(C) any other invention or subject matter (including all intellectual property rights therein) that is conceived, reduced to practice or otherwise made solely by Dyax personnel in connection with this Agreement.

Collectively, the inventions referenced under this Section 5.2(b)(i) are referred to herein as the "Dyax Inventions".

(ii) Merrimack shall hold title to any invention or other subject matter (including all Intellectual property rights therein) conceived, reduced to practice or otherwise made solely by Merrimack personnel in connection with this Agreement; [**]. Collectively, the inventions referenced under this Section 5.2(b)(ii) are referred to herein as the "Merrimack Inventions".

(iii) The Parties shall jointly hold title to all inventions and other subject matter (including all intellectual property rights therein) conceived, reduced to practice or otherwise made jointly by personnel of Dyax and Merrimack; [**]. Collectively, the inventions referenced under this Section 5.2(b)(iii) are referred to herein as the "Joint Inventions".

Except as expressly provided in this Agreement, it is understood that neither Party shall have any obligation to account to the other

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for profits, or to obtain any approval of the other Party to license or exploit a joint invention, by reason of joint ownership of any invention or other intellectual property and each Party hereby waives any right it may have under the laws of any country to require such accounting or approval. Dyax shall promptly notify Merrimack of all Dyax Antibodies identified against Merrimack Targets in accordance with the applicable Research Plan, together with all Dyax Antibody Information applicable thereto.

5.3 Patenting Antibody Inventions under the Research Program.

(a) Filing and Prosecution. Prior to the exercise of Merrimack's option to obtain a Commercial License as set forth in Section 3.1(b), Merrimack may wish to file or to have Dyax file (as set forth below) a provisional application. Prior to filing a provisional application, Merrimack shall provide a draft of each such proposed provisional application to Dyax for review and comment and discussion related to inventorship [**] days prior to filing. During the [**] day review period:

(i) Dyax may review and comment upon any such provisional patent application and Merrimack shall incorporate Dyax's reasonable comments; and

(ii) Merrimack and Dyax shall use reasonable and good faith efforts to reach a common understanding of inventorship of claims.

(A) If Merrimack and Dyax agree that the inventions claimed in the provisional application are Dyax Inventions as defined in Section 5.2(b)(i)(A) or Joint Inventions as defined in Section 5.2(b)(iii), then Dyax will, at Merrimack's request and expense, file and prosecute any Patent Rights in any country requested by Merrimack with a patent counsel reasonably acceptable to Merrimack. For clarity, this means that Dyax will also file and prosecute any nonprovisional Patent Rights based on such provisional applications prior to Merrimack exercising its right to obtain a Commercial License as set forth in Section 3.1(b). Thereafter, Dyax's Patent Rights in such Dyax Inventions or Joint Inventions shall be deemed to be included in the rights licensed to Merrimack under Section 3.1. Dyax shall (i) keep Merrimack fully informed as to the filing, prosecution and maintenance of such Patent Rights, (ii) furnish to Merrimack copies of all documents relevant to any such filing, prosecution and maintenance, and (iii) allow Merrimack [**] days to review and comment upon, and to incorporate Merrimack's reasonable comments into,

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any such document filed with any patent office with respect to such Patent Rights prior to filing such documents.

(B) If the inventions described in the provisional application are mutually agreed to be Merrimack Inventions or determined to be Merrimack Inventions pursuant to Section 5.3(a)(ii)(C) below, then Merrimack shall have the sole and exclusive right to file and prosecute any Patent Rights based on such provisional application in any country, at Merrimack's expense.

(C) If Merrimack and Dyax cannot, despite reasonable and good faith efforts, reach a common understanding of inventorship of claims of any such draft provisional application, then Dyax shall file the provisional patent application. Merrimack and Dyax [**] reasonably acceptable to both Parties prior to the [**], who shall make a final determination of inventorship (in accordance with [**]) as to the [**] which was [**] to such [**]. Such [**] shall be [**] upon the [**] and their respective [**]. If the [**] is [**] to be a [**] under Section [**] or a [**] under Section [**] then [**] shall continue to [**] in any country requested by [**] at [**] expense. Thereafter, such [**] in such [**] or [**] shall be deemed to be included in the rights licensed to Merrimack under Section 3.1. Dyax shall (i) keep Merrimack fully informed as to the filing, prosecution and maintenance of such Patent Rights, (ii) furnish to Merrimack copies of all documents relevant to any such filing, prosecution and maintenance, and (iii) allow Merrimack [**] days to review and comment upon, and to incorporate Merrimack's reasonable comments into, any such document filed with any patent office with respect to such Patent Rights prior to filing such documents.

(b) Upon exercise of Merrimack's option to obtain a Commercial License with respect to a Dyax Antibody, as set forth in Section 3.1(b), Dyax shall assign (and cause its inventors to assign) to Merrimack any of Dyax's Patent Rights in the Dyax Inventions as defined in Section 5.2(b)(i)(A) and any Joint Inventions as defined in Section 5.2(b)(iii) that are directed to or relating to such Dyax Antibody. Upon exercise of a Commercial License, Merrimack will also have the right to file and prosecute all pending and subsequent patent applications related to the Dyax Antibody(ies), the intellectual property rights for which are subject to an obligation of assignment to Merrimack hereunder, without providing Dyax with a draft application or other

prosecution documents for review and comment prior to such filing. Dyax will use reasonable efforts to cooperate with Merrimack in such activities. For the avoidance of doubt,

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Dyax acknowledges and agrees that if, upon Merrimack's election to obtain a Commercial License with respect to a Dyax Antibody, Dyax is [**] with respect to the Target against which such Dyax Antibody is directed [**], Merrimack's rights under clauses of this paragraph above shall apply notwithstanding [**] and Merrimack may, at Merrimack's expense, require Dyax to assign (and cause its inventors to assign) to Merrimack Dyax's Patent Rights in any Dyax Inventions as defined in Section 5.2(b)(i)(A) and any Joint Inventions as defined in Section 5.2(b)(iii) that are directed to or relating to such Dyax Antibody.

For clarity, If Merrimack does not exercise its option to obtain a Commercial License with respect to a Dyax Antibody, Dyax's Patent Rights in any Dyax Inventions as defined in Section 5.2(b)(i)(A) directed to or relating to such Dyax Antibody shall remain owned by Dyax and Dyax's joint ownership rights to Joint Inventions as defined in Section 5.2(b)(iii) directed to or relating to such Dyax Antibody shall remain owned by Dyax.

(c) Enforcement. Merrimack shall have the right but not the obligation, at its expense, to enforce any Patent Rights which relate to any Antibody that is identified, generated, developed, produced, optimized, or obtained by Dyax from a Dyax Library that is delivered by Dyax to Merrimack in connection with the Research Program. Dyax shall cooperate with Merrimack, at Merrimack's expense, in pursuing any litigation or other enforcement action to enforce such Patent Rights, including allowing Merrimack to file suit in Dyax's name, making Dyax employees available to Merrimack, and promptly executing any documents which may be required to pursue such action. Merrimack shall control any such litigation or other enforcement action and shall enter into, or permit, the settlement of any such litigation or other enforcement action. All monies recovered upon the final judgment or settlement of any suit to enforce such Patent Rights shall first be paid to recover the respective actual out-of-pocket expenses of Merrimack and Dyax, or equitable portion thereof, associated with the enforcement. The remainder of any such monies shall be deemed to be Net Sales for purposes of determining the royalties owed by Merrimack to Dyax under Sections 4.6. and 4.7.

5.4 Further Assurances. Each Party has and will have appropriate agreements with its employees and contractors necessary to fully effect the provisions of Sections 5.1, 5.2 and 5.3. Each Party agrees to execute such assignments and other documents, to cause its employees and agents to execute such assignments and other documents, and to take such other actions, as may reasonably be requested by the other Party from time to time to give effect to the provisions of Sections 5.1, 5.2 and 5.3.

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3. From and after the date of this Amendment, the term "Agreement" as used in the Amended Agreement shall mean the Amended Agreement, as further amended by this Amendment. Except as expressly amended hereby, the terms of the Amended Agreement shall remain in full force and effect and all such terms are hereby ratified and confirmed.

4. This Amendment may be executed in one or more counterparts, each of which shall be deemed an original and all of which shall constitute one and the same instrument.

5. This Amendment shall be governed by the laws of the laws of the Commonwealth of Massachusetts.

IN WITNESS WHEREOF, the undersigned have duly executed and delivered this Agreement as a sealed instrument effective as of the date first above written.

DYAX CORP.

By: /s/ Ivana Magovcevic-Liebisch
Title: Executive Vice President, Corporate Development and General Counsel
Date 11/6/09

MERRIMACK PHARMACEUTICALS, INC.

By: /s/ Edward J. Stewart
Title: SVP, Business Development
Date: November 4, 2009

Exhibit 21.1

Subsidiaries of the Registrant

Name	Jurisdiction of Incorporation
Merrimack Pharmaceuticals (Bermuda) Ltd. *	Bermuda
Merrimack Pharmaceuticals UK Limited *	UK
Silver Creek Pharmaceuticals, Inc.	Delaware

* wholly owned

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the use in this Registration Statement on Form S-1 of Merrimack Pharmaceuticals, Inc. of our report dated July 8, 2011 relating to the financial statements of Merrimack Pharmaceuticals, Inc. which appears in such Registration Statement. We also consent to the reference to us under the heading "Experts" in such Registration Statement.

/s/ PricewaterhouseCoopers LLP

Boston, Massachusetts
July 8, 2011