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

FORM 10-Q

(Mark One)

☒ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the quarterly period ended September 30, 2019

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from _____ to _____

Commission file number: 001-35409

Merrimack Pharmaceuticals, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**04-3210530**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification Number)**
One Broadway, 14th Floor Cambridge, MA	**02142**
(Address of principal executive offices)	**(Zip Code)**

(617) 441-1000
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common stock, $0.01 par value	MACK	Nasdaq Global Market

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

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

Large accelerated filer	☐	Accelerated filer	☒
Non-accelerated filer	☐	Smaller reporting company	☒
Emerging growth company	☐		

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

As of November 8, 2019, there were 13,362,951 shares of Common Stock, $0.01 par value per share, outstanding.

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FORWARD-LOOKING STATEMENTS

This Quarterly Report on Form 10-Q contains forward-looking statements that involve substantial risks and uncertainties. All statements, other than statements of historical facts, contained in this Quarterly Report on Form 10-Q, 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 Quarterly Report on Form 10-Q include, among other things, statements about:

- our plans to cease development of our product candidates and diagnostics;
- the anticipated cost savings in connection with our restructuring efforts;
- our plans to seek to divest our product candidates and other assets;
- our rights to receive payments related to the milestone events under the asset purchase and sale agreement with Ipsen S.A. or under the license and collaboration agreement between Ipsen S.A. and Les Laboratoires Servier SAS (as assignee from Shire plc), when expected or at all, and our intent to deliver any such milestone payments received to stockholders, after any taxes owed;
- our rights to receive payments related to the milestone events under the asset purchase agreement with 14ner Oncology, Inc., when expected or at all;
- our intellectual property position;
- our commercialization, marketing and manufacturing capabilities and strategy;
- our cash runway and the sufficiency of our financial resources to fund our operations; 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 Quarterly Report on Form 10-Q, particularly in Part II, Item 1A. Risk Factors, that 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, collaborations or investments that we may make.

You should read this Quarterly Report on Form 10-Q and the documents that we have filed as exhibits to this Quarterly Report on Form 10-Q 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, whether as a result of new information, future events or otherwise, except as required by law.

NOTE REGARDING TRADEMARKS

ONIVYDE® is a trademark of Ipsen S.A. Any other trademarks, trade names and service marks referred to in this Quarterly Report on Form 10-Q are the property of their respective owners.

PART I

FINANCIAL INFORMATION

Item 1. Financial Statements.

Merrimack Pharmaceuticals, Inc.
Condensed Consolidated Balance Sheets
(unaudited)

(in thousands, except per share amounts)	September 30, 2019	December 31, 2018
Assets		
Current assets:		
Cash and cash equivalents	$ 20,858	$ 20,079
Marketable securities	—	51,199
Restricted cash	—	584
Prepaid expenses and other current assets	1,540	4,240
Total current assets	22,398	76,102
Property and equipment, net	—	2,269
Equity method investment	—	7,428
Other assets	2,443	2,744
Total assets	$ 24,841	$ 88,543
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable, accrued expenses and other	$ 4,683	$ 13,677
Deferred rent	—	1,118
Other current liabilities	56	—
Total current liabilities	4,739	14,795
Note payable, net of discount and current portion	—	14,873
Other long-term liabilities	—	56
Total liabilities	4,739	29,724
Commitments and contingencies		
Stockholders' equity:		
Preferred stock, $0.01 par value: 10,000 shares authorized at September 30, 2019 and December 31, 2018; no shares issued or outstanding at September 30, 2019 or December 31, 2018	—	—
Common stock, $0.01 par value: 30,000 shares authorized at September 30, 2019 and December 31, 2018; 13,363 and 13,343 shares issued and outstanding at September 30, 2019 and December 31, 2018, respectively	1,334	1,334
Additional paid-in capital	562,638	580,771
Accumulated other comprehensive loss	—	(9)
Accumulated deficit	(543,870)	(523,277)
Total stockholders' equity	20,102	58,819
Total liabilities and stockholders' equity	$ 24,841	$ 88,543

The accompanying notes are an integral part of these condensed consolidated financial statements.

Merrimack Pharmaceuticals, Inc.
Condensed Consolidated Statements of Operations and Comprehensive Loss
(unaudited)

(in thousands, except per share amounts)	Three Months Ended September 30, 2019	Three Months Ended September 30, 2018	Nine Months Ended September 30, 2019	Nine Months Ended September 30, 2018
Operating expenses:				
Research and development expenses	$ —	$ 12,959	$ 11,100	$ 39,743
General and administrative expenses	4,346	3,777	13,958	11,560
Gain on sale of assets	(3,500)	—	(4,910)	—
Total operating expenses	846	16,736	20,148	51,303
Loss from operations	(846)	(16,736)	(20,148)	(51,303)
Other income and expenses:				
Interest income	140	306	712	863
Interest expense	—	(472)	(1,527)	(472)
Other (expense) income, net	1	(237)	370	(1,778)
Total other income and expenses	141	(403)	(445)	(1,387)
Net loss from continuing operations before income tax benefit	(705)	(17,139)	(20,593)	(52,690)
Income tax benefit	—	4,798	—	4,798
Net loss from continuing operations	(705)	(12,341)	(20,593)	(47,892)
Discontinued operations:				
Income from discontinued operations, net of tax	—	16,330	—	16,330
Net income (loss)	$ (705)	$ 3,989	$ (20,593)	$ (31,562)
Other comprehensive income (loss):				
Unrealized gain (loss) on marketable securities	—	(4)	9	(5)
Other comprehensive income (loss)	—	(4)	9	(5)
Comprehensive income (loss)	$ (705)	$ 3,985	$ (20,584)	$ (31,567)
Basic and dilutive net income (loss) per common share:				
Net loss from continuing operations	$ (0.05)	$ (0.92)	$ (1.54)	$ (3.59)
Net income from discontinued operations, net of tax	—	1.22	—	$ 1.22
Net income (loss) per share	$ (0.05)	$ 0.30	$ (1.54)	$ (2.37)
Weighted-average common shares used to compute basic and diluted net loss per common share	13,358	13,343	13,348	13,343
Cash dividend paid per common share	$ 1.4967	$ —	$ —	$ —

The accompanying notes are an integral part of these condensed consolidated financial statements.

Merrimack Pharmaceuticals, Inc.
Condensed Consolidated Statements of Stockholders' Equity
(unaudited)

(in thousands)	Common Stock Shares	Common Stock Amount	Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
Balance at December 31, 2018	13,343	$ 1,334	$ 580,771	$ (9)	$ (523,277)	$ 58,819
Stock-based compensation	—	—	594	—	—	594
Unrealized gain on marketable securities	—	—	—	9	—	9
Net loss	—	—	—	—	(10,458)	(10,458)
Balance at March 31, 2019	13,343	$ 1,334	$ 581,365	$ —	$ (533,735)	$ 48,964
Stock-based compensation	—	—	487	—	—	487
Exercise of stock options	6	—	23	—	—	23
Net loss	—	—	—	—	(9,430)	(9,430)
Balance at June 30, 2019	13,349	$ 1,334	$ 581,875	$ —	$ (543,165)	$ 40,044
Stock-based compensation	—	—	703	—	—	703
Exercise of stock options	14	—	60	—	—	60
Dividend paid	—	—	(20,000)	—	—	(20,000)
Net loss	—	—	—	—	(705)	(705)
Balance at September 30, 2019	13,363	$ 1,334	$ 562,638	$ —	$ (543,870)	$ 20,102

(in thousands)	Common Stock Shares	Common Stock Amount	Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
Balance at December 31, 2017	13,343	$ 1,334	$ 577,721	$ —	$ (482,771)	$ 96,284
Stock-based compensation	—	—	764	—	—	764
Unrealized loss on marketable securities	—	—	—	(12)	—	(12)
Net loss	—	—	—	—	(17,782)	(17,782)
Balance at March 31, 2018	13,343	$ 1,334	$ 578,485	$ (12)	$ (500,553)	$ 79,254
Stock-based compensation	—	—	780	—	—	780
Unrealized loss on marketable securities	—	—	—	11	—	11
Net loss	—	—	—	—	(17,769)	(17,769)
Balance at June 30, 2018	13,343	$ 1,334	$ 579,265	$ (1)	$ (518,322)	$ 62,276
Stock-based compensation	—	—	782	—	—	782
Unrealized loss on marketable securities	—	—	—	(4)	—	(4)
Net income	—	—	—	—	3,989	3,989
Balance at September 30, 2018	13,343	$ 1,334	$ 580,047	$ (5)	$ (514,333)	$ 67,043

The accompanying notes are an integral part of these condensed consolidated financial statements.

Merrimack Pharmaceuticals, Inc.
Condensed Consolidated Statements of Cash Flows
(unaudited)

(in thousands)	Nine Months Ended September 30, 2019	2018
Cash flows from operating activities		
Net loss	$ (20,593)	$ (31,562)
Less:		
Gain from discontinued operations	—	16,330
Loss from continuing operations	(20,593)	(47,892)
Adjustments to reconcile net loss to net cash used in operating activities		
Non-cash interest expense	141	121
Loss on extinguishment of debt	971	—
Benefit from intraperiod tax allocation	—	(4,798)
Depreciation and amortization expense	2,228	3,211
Non-cash activity related to discontinued operations	—	(532)
Loss (gain) on sale of equipment	(1,984)	184
Gain on sale of in progress research and development asset	(3,500)	—
Premiums paid on marketable securities	—	(2)
Amortization and accretion on marketable securities	(292)	(398)
Stock-based compensation expense	1,784	2,326
Loss (gain) on equity method investment	(372)	1,658
Changes in operating assets and liabilities:		
Prepaid expenses and other assets	3,001	(314)
Income taxes payable	—	361
Accounts payable, accrued expenses and other	(10,112)	1,083
Deferred rent	—	(1,704)
Net cash used in operating activities	(28,728)	(46,696)
Cash flows from investing activities		
Purchase of property and equipment	—	(118)
Proceeds from sale of equipment	2,025	—
Proceeds from sale of in progress research and development asset	3,500	—
Proceeds from sale of equity method investment	7,800	—
Proceeds from sale of business	—	23,000
Proceeds from maturities and sales of marketable securities	51,500	42,200
Purchases of marketable securities	—	(76,857)
Net cash provided by (used in) investing activities	64,825	(11,775)
Cash flows from financing activities		
Proceeds from issuance of notes payable, net of issuance costs	—	14,632
Proceeds from exercise of stock options	83	—
Repayment of debt	(15,000)	—
Payment of debt extinguishment costs	(985)	—
Payment of dividend	(20,000)	—
Net cash (used in) provided by financing activities	(35,902)	14,632
Net increase (decrease) in cash, cash equivalents and restricted cash	195	(43,839)
Cash, cash equivalents and restricted cash, beginning of period	20,663	94,217
Cash, cash equivalents and restricted cash, end of period	$ 20,858	$ 50,378
Non-cash investing activities		
Supplemental disclosure of cash flows		
Cash paid for interest	1,399	235

The accompanying notes are an integral part of these condensed consolidated financial statements.

1. Nature of the Business

Merrimack Pharmaceuticals, Inc. (the "Company") is a biopharmaceutical company based in Cambridge, Massachusetts that is entitled to receive up to $455.0 million in contingent milestone payments related to its sale of ONIVYDE® to Ipsen S.A. ("Ipsen") in April 2017. The Company does not have any ongoing research or development activities and is seeking potential acquirers for its remaining preclinical and clinical assets. The Company does not have any employees and instead uses external consultants for the operation of the Company.

On April 3, 2017, the Company completed the sale to Ipsen (the "Ipsen Sale") of ONIVYDE and MM-436. In connection with the Ipsen Sale, the Company is eligible to receive up to $450.0 million in additional regulatory approval-based milestone payments. The Company is also eligible to receive a remaining $5.0 million milestone payment that may become payable for the ex-U.S. development and commercialization of ONIVYDE pursuant to a license and collaboration agreement (the "Servier Agreement") between Ipsen and Les Laboratoires Servier SAS ("Servier") (as assignee from Shire plc). The Company entered into the Servier Agreement in 2014, and on April 3, 2017, the Servier Agreement was assigned to Ipsen in connection with the completion of the Ipsen Sale. To date, the Company has received $28.0 million of the potential $33.0 million in milestone payments under the Servier Agreement.

The remaining up to $455.0 million in potential milestone payments resulting from the Ipsen Sale consist of:

- $5.0 million upon Ipsen and Servier's joint decision to progress their ongoing multi-part clinical trial evaluating ONIVYDE in small-cell lung cancer ("SCLC") into the second randomized portion of the trial focused on efficacy;
- $225.0 million upon approval by the U.S. Food and Drug Administration ("FDA") of ONIVYDE for the first-line treatment of metastatic adenocarcinoma of the pancreas, subject to certain conditions;
- $150.0 million upon approval by the FDA of ONIVYDE for the treatment of small-cell lung cancer ("SCLC") after failure of first-line chemotherapy; and
- $75.0 million upon approval by the FDA of ONIVYDE for an additional indication unrelated to those described above.

On May 30, 2019, the Company announced the completion of its review of strategic alternatives, following which the Company's board of directors implemented a series of measures designed to extend the Company's cash runway and preserve its ability to capture the potential milestone payments resulting from the Ipsen Sale. In connection with that announcement, the Company discontinued the discovery efforts on its remaining preclinical programs: MM-401, an agonistic antibody targeting a novel immuno-oncology target, TNFR2; and MM-201, a highly stabilized agonist-Fc fusion protein targeting death receptors 4 and 5. The Company is seeking potential acquirers for its remaining preclinical and clinical assets.

The Company's termination of its executive management team and all other employees was substantially completed by June 28, 2019 and fully completed by July 12, 2019. As of July 12, 2019, the Company does not have any employees. The Company has engaged external consultants to run the day-to-day operations of the Company. The Company has also entered into consulting agreements with certain former members of its executive management team who are supporting the Company's relationship with current partners, assisting with the potential sale of remaining preclinical and clinical assets, and assisting with certain legal matters and the continued wind-down of operations.

In May 2019, the Company monetized certain assets to strengthen its cash position. This includes the sale of its entire equity position in Silver Creek Pharmaceuticals, Inc. ("Silver Creek"), resulting in $7.8 million in cash, and the sale of laboratory equipment from its research and development operations, resulting in approximately $1.4 million in cash.

On April 15, 2019, the Company repaid in full all principal, accrued and unpaid interest, fees, costs and expenses under its Loan and Security Agreement (the "Loan Agreement") with Hercules Capital, Inc. ("Hercules") in an aggregate amount equal to $16.0 million.

On July 12, 2019, the Company completed the sale to 14ner Oncology, Inc. ("14ner") (the "14ner Sale") of its anti-HER3 antibody programs, MM-121 (seribantumab) and MM-111. In connection with the 14ner Sale, the Company received an upfront cash payment of $3.5 million in connection with the completion of the 14ner Sale. The Company is also eligible to receive up to $54.5 million in additional potential development, regulatory approval and commercial-based milestone payments, consisting of:

- $3.0 million for achievement of the primary endpoint in the first registrational clinical study of either MM-121 or MM-111;
- Up to $16.5 million in total payments for the achievement of various regulatory approval and reimbursement-based milestones in the United States, Europe and Japan; and

- Up to $35.0 million in total payments for achieving various cumulative worldwide net sales targets between $100.0 million and $300.0 million for MM-121 and MM-111.
- The Company's board of directors authorized and declared a special cash dividend of $20.0 million to holders of the Company's common stock, which was payable on September 5, 2019 to stockholders of record as of the close of business on August 28, 2019.

The Company is subject to risks and uncertainties common to companies in the biopharmaceutical industry, including, among other things, its ability to secure additional capital to fund operations, development by competitors of new technological innovations, protection of proprietary technology and compliance with government regulations. None of the Company's product candidates are approved for any indication by the FDA or any other regulatory agency. The Company operates in an environment of rapid change in technology and substantial competition from pharmaceutical and biotechnology companies, among others. In addition, the Company is dependent upon the services of its external consultants for the operation of the Company. The Company's business strategy depends substantially upon its ability to receive future milestone payments from Ipsen and Servier. Any failure to achieve such milestones or a perception that the milestones may not be achieved will materially and adversely affect the Company and the value of its common stock.

In accordance with Accounting Standards Codification ("ASC") 205-40, *Going Concern*, the Company has evaluated whether there are conditions and events, considered in the aggregate, that raise substantial doubt about the Company's ability to continue as a going concern within one year after the date that the condensed consolidated financial statements are issued. As of September 30, 2019, the Company had an accumulated deficit of $543.9 million. During the nine months ended September 30, 2019, the Company incurred a net loss of $20.6 million and used $28.7 million of cash in operating activities. The Company expects to continue to generate operating losses in the foreseeable future. Based on current projections, the Company believes that existing cash, and cash equivalents of $20.9 million as of September 30, 2019 will allow the Company to continue its operations into 2027, when the Company estimates the longest-term potential Ipsen milestone may be achieved. The continued viability of the Company beyond that point is dependent on its ability to raise additional capital to finance its operations or to reduce operating expenses. There can be no assurance that the Company will be able to obtain sufficient capital to cover its costs on acceptable terms, if at all.

The Company expects that it would finance any future cash needs through a combination of divestitures of its product candidates or other assets, equity offerings and debt financings. There can be no assurance as to the timing, terms or consummation of any divestiture or financing, and the terms of any such financing may adversely affect the holdings or the rights of the Company's stockholders or require the Company to relinquish rights to certain of its revenue streams or product candidates.

2. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying condensed consolidated financial statements reflect the operations of Merrimack Pharmaceuticals, Inc. and its wholly owned subsidiaries. All intercompany accounts and transactions have been eliminated.

The condensed consolidated financial statements are unaudited and have been prepared in accordance with accounting principles generally accepted in the United States of America ("GAAP").

The accounting policies followed in the preparation of the interim condensed consolidated financial statements are consistent in all material respects with those presented in Note 1 to the financial statements included in the Company's Annual Report on Form 10-K for the year ended December 31, 2018.

Consolidation

The accompanying condensed consolidated financial statements reflect Merrimack Pharmaceuticals, Inc. and its wholly owned subsidiaries.

Unaudited Interim Financial Information

The condensed consolidated balance sheet as of December 31, 2018 was derived from audited financial statements, but does not include all disclosures required by GAAP. The condensed consolidated balance sheet as of September 30, 2019, the condensed consolidated statements of operations and comprehensive loss for the three and nine months ended September 30, 2019 and 2018, the condensed consolidated statements of stockholders' equity for the three and nine months ended September 30, 2019 and 2018 and the condensed consolidated statements of cash flows for the nine months ended September 30, 2019 and 2018 are unaudited. The unaudited interim condensed consolidated financial statements have been prepared on the same basis as the audited annual financial statements and, in the opinion of management, reflect all adjustments, which include only normal recurring adjustments, necessary for the fair statement of the Company's financial position as of September 30, 2019, the results of its operations for the three and nine

months ended September 30, 2019 and 2018, its statements of stockholders' equity for the three and nine months ended September 30, 2019 and 2018 and its statements of cash flows for the nine months ended September 30, 2019 and 2018. The financial data and other information disclosed in the notes related to the three and nine months ended September 30, 2019 and 2018 are unaudited. The results for the three and nine months ended September 30, 2019 and 2018 are not necessarily indicative of results to be expected for the year ending December 31, 2019, any other interim periods, or any future year or period.

The unaudited interim financial statements of the Company included herein have been prepared pursuant to the rules and regulations of the Securities and Exchange Commission (the "SEC"). Certain information and footnote disclosures normally included in financial statements prepared in accordance with GAAP have been condensed or omitted from this report, as is permitted by such rules and regulations. These unaudited condensed consolidated financial statements should be read in conjunction with the audited financial statements and the notes thereto contained in the Company's Annual Report on Form 10-K for the year ended December 31, 2018 filed with the SEC on March 6, 2019.

Condensed Consolidated Statements of Cash Flows

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within the statement of financial position that sum to the total of the same such amounts shown in the statement of cash flows:

(in thousands)	September 30, 2019	September 30, 2018
Cash and cash equivalents	$ 20,858	$ 49,794
Restricted cash (long-term)	—	584
Total cash, cash equivalents and restricted cash shown in the condensed consolidated statement of cash flows	$ 20,858	$ 50,378

Restricted cash on the statement of financial position for 2018 primarily represents amounts pledged as collateral for operating lease obligations as contractually required.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates, assumptions and judgments that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the condensed consolidated financial statements and the reported amounts of expenses during the reporting periods. Significant estimates, assumptions and judgments reflected in these condensed consolidated financial statements include, but are not limited to, the accrual of research and development expenses and the valuation of stock-based awards. Estimates are periodically reviewed in light of changes in circumstances, facts and experience. Actual results could differ from the Company's estimates.

3. Leases

The Company adopted the new leasing standards on January 1, 2019, using the modified retrospective transition method, which does not require restatement of prior periods, for all the leases existing as of the adoption date. The adoption of the new leasing standards did not have a significant impact on the Company's consolidated financial statements. As of January 1, 2019, the Company's only existing lease was the lease of its principal research and office space located at One Kendall Square in Cambridge, Massachusetts, which expired in June 2019.

4. Fair Value of Financial Instruments

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 measured at fair value on a recurring basis as of September 30, 2019 and December 31, 2018:

(in thousands)	September 30, 2019 Level 1	Level 2	Level 3
Cash equivalents:			
Money market funds	$ 16,705	$ —	$ —
Totals	$ 16,705	$ —	$ —

(in thousands)	December 31, 2018 Level 1	Level 2	Level 3
Cash equivalents:			
Money market funds	$ 16,292	$ —	$ —
Commercial paper	—	1,998	—
Totals	$ 16,292	$ 1,998	$ —
Marketable securities:			
Commercial paper	$ —	$ 31,766	$ —
Corporate debt securities	—	7,479	—
Government securities	—	11,954	—
Totals	$ —	$ 51,199	$ —

During the nine months ended September 30, 2019 and the year ended December 31, 2018, there were no transfers between Level 1 and Level 2. The fair value of Level 2 instruments classified as cash equivalents and marketable debt securities were determined through third-party pricing services.

The Company's cash, restricted cash, prepaid expenses and other current assets, accounts payable and accrued expenses are recorded at cost, which approximates fair value due to their short-term nature.

5. Marketable Securities and Cash Equivalents

The following table summarizes the Company's marketable securities and cash equivalents as of September 30, 2019 and December 31, 2018:

(in thousands)	September 30, 2019 Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Cash equivalents:				
Money market funds	$ 16,705	$ —	$ —	$ 16,705
Total cash equivalents	$ 16,705	$ —	$ —	$ 16,705

(in thousands)	December 31, 2018 Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Cash equivalents:				
Money market funds	$ 16,292	$ —	$ —	$ 16,292
Commercial paper	1,998	—	—	1,998
Total cash equivalents	$ 18,290	$ —	$ —	$ 18,290
Marketable securities:				
Commercial paper	$ 31,766	$ —	$ —	$ 31,766
Corporate debt securities	7,487	—	(8)	7,479
Government securities	11,955	—	(1)	11,954
Total marketable securities	$ 51,208	$ —	$ (9)	$ 51,199

6. Notes Payable

Through April 15, 2019, the Company borrowed $15.0 million under the Loan Agreement by and among the Company, certain subsidiaries of the Company from time to time party thereto, the several banks and other financial institutions or entities from time to time parties thereto (collectively referred to as "Lender") and Hercules, in its capacity as administrative agent and collateral agent for itself and Lender, and incurred $0.4 million of related debt discount and issuance costs, inclusive of the $0.3 million fee paid upon closing. Prior to the repayment of the debt, the debt discount and issuance costs were being accreted to the principal amount of debt and being amortized from the date of issuance through August 1, 2021 to interest expense using the effective-interest method.

On April 15, 2019, the Company repaid in full all principal, accrued and unpaid interest, fees, costs and expenses under the Loan Agreement in an aggregate amount equal to $16.0 million (the "Payoff Amount"). The Payoff Amount includes a prepayment penalty of $0.2 million and a fee of $0.8 million, which were recorded to interest expense. The loss on extinguishment of the debt of approximately $1.0 million was recorded as interest expense during the second quarter of 2019. The loss on extinguishment represents the difference between the reacquisition price of the debt and the net carrying amount of the extinguished debt. In connection with the payment of the Payoff Amount, all liens and security interests granted to secure the obligations under the Loan Agreement and all guaranties of the obligations under the Loan Agreement terminated.

No interest expense was associated with the Loan Agreement for the three months ended September 30, 2019. During the nine months ended September 30, 2019, the Company recognized $1.5 million of interest expense related to the Loan Agreement. No interest expense was associated with the Loan Agreement for the three and nine months ended September 30, 2018.

7. Accounts Payable, Accrued Expenses and Other

Accounts payable, accrued expenses and other as of September 30, 2019 and December 31, 2018 consisted of the following:

(in thousands)	September 30, 2019	December 31, 2018
Accounts payable	$ 710	$ 1,034
Accrued goods and services	1,399	2,082
Accrued clinical trial costs	684	1,683
Accrued drug purchase costs	371	4,245
Accrued payroll and related benefits	—	2,315
Accrued restructuring expenses	122	921
Income taxes payable	83	83
Deferred tax incentives	1,314	1,314
Total accounts payable, accrued expenses and other	$ 4,683	$ 13,677

8. Stock-Based Compensation

The Company's 2011 Stock Incentive Plan (the "2011 Plan") is administered by the Company's Board of Directors and permits the Company to grant incentive and non-qualified stock options, stock appreciation rights, restricted stock, restricted stock units and other stock-based awards.

The Company's board of directors authorized and declared a special cash dividend of $20.0 million to holders of the Company's common stock, which was payable on September 5, 2019 to stockholders of record as of the close of business on August 28, 2019. The board of directors determined, in accordance with the adjustment provision of the 2011 Plan, that the special cash dividend was unusual and non-recurring and that appropriate adjustment to the stock options to purchase shares of the Company's common stock outstanding under the 2011 Plan was required. The Company treated this adjustment as a modification to the original stock option grant because the terms of the agreements were modified in order to preserve the value of the option awards after a large non-recurring cash dividend. These options were amended to decrease the exercise price and increase the shares subject to the stock option. However, as the fair value of the underlying stock decreased more than the exercise price upon modification, and the result was a decrease in the fair value of such options. Accordingly, no incremental value was provided and no additional compensation cost was recorded by the Company.

At September 30, 2019, there were 1.2 million shares remaining available for grant under the 2011 Plan. The weighted-average grant date fair value per share of stock options granted during the three and nine months ended September 30, 2019 was $3.53. The weighted-average grant date fair value per share of stock options granted during the nine months ended September 30, 2018.

The fair value of stock options granted to employees during the nine months ended September 30, 2019 and 2018 was estimated at the date of grant using the following assumptions:

	Nine Months Ended September 30,	
	2019	2018
Risk-free interest rate	1.8%	2.3 – 2.9%
Expected dividend yield	0%	0%
Expected term	5.4 years	5.3 - 5.8 years
Expected volatility	67%	62 – 64%

The Company recognized stock-based compensation expense during the three and nine months ended September 30, 2019 and 2018 as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
(in thousands)	2019	2018	2019	2018
Research and development expense	$ —	$ 256	$ 223	$ 870
General and administrative expense	703	526	1,561	1,456
Total stock-based compensation expense	$ 703	$ 782	$ 1,784	$ 2,326

9. Net Loss Per Common Share

Basic net loss per share is calculated by dividing the net loss attributable to Merrimack Pharmaceuticals, Inc. by the weighted-average number of common shares outstanding during the period.

Diluted net loss per share is computed by dividing the net loss attributable to Merrimack Pharmaceuticals, Inc. by the weighted-average number of dilutive common shares outstanding during the period. Dilutive shares outstanding is calculated by adding to the weighted shares outstanding any potential (unissued) shares of common stock from outstanding stock options based on the treasury stock method. In a period when a net loss is reported, all common stock equivalents are excluded from the calculation because they would have an anti-dilutive effect, meaning the loss per share would be reduced. Therefore, in periods where a loss is reported, there is no difference in basic and dilutive loss per share.

The Company follows the two-class method when computing net loss per share when it has issued shares that meet the definition of participating securities. The two-class method determines net loss per share for each class of common and participating securities according to dividends declared or accumulated and participating rights in undistributed earnings. The two-class method requires income available to common stockholders for the period to be allocated between common and participating securities based on their respective rights to receive dividends, as if all income for the period has been distributed or losses to be allocated if they are contractually required to fund losses. There were no amounts allocated to participating securities for the three and nine months ended September 30, 2019 and 2018, as the Company was in a loss position and had no shares that met the definition of participating securities outstanding as of September 30, 2019 and 2018.

Stock options are excluded from the calculation of diluted loss per share because the net loss for the three and nine months ended September 30, 2018 causes such securities to be anti-dilutive. Outstanding options excluded from the calculation of diluted loss per share for the three and nine months ended September 30, 2019 and 2018 are shown in the chart below:

	Three Months Ended September 30,		Nine Months Ended September 30,	
(in thousands)	2019	2018	2019	2018
Outstanding options to purchase common stock	1,781	1,806	1,781	1,806

10. Restructuring Activities

On November 7, 2018, the Company announced that it was implementing a reduction in headcount as part of a corporate restructuring. The corporate restructuring followed a comprehensive review of the Company's product candidate pipeline. Under this corporate restructuring, the Company recognized total restructuring expenses of $1.3 million for the year ended December 31, 2018 consisting of one-time employee termination benefits of $1.0 million recorded in research and development expense and $0.3 million recorded in general and administrative expense. These one-time employee termination benefits are comprised of severance, benefits and related costs, all of which are expected to result in cash expenditures. Approximately $0.4 million of these payments were made during the fourth quarter of 2018, and the accrued remaining payments at December 31, 2018 were approximately $0.9 million.

During the three months ended September 30, 2019, the Company reversed restructuring expenses of $0.1 million, consisting of one-time employee termination benefits of $0.1 million recorded in general and administrative expense. During the nine months ended September 30, 2019, the Company recognized additional restructuring expenses of $4.8 million, consisting of one-time employee termination benefits of $2.0 million recorded in research and development expense and $2.8 million recorded in general and administrative expense. These one-time employee termination benefits are comprised of severance, benefits and related costs, all of which are expected to result in cash expenditures. During the three and nine months ended September 30, 2019, the Company paid approximately $0.8 million and $5.6 million of these restructuring expenses, respectively.

As a result of the restructuring announced on January 8, 2017, the Company paid $0.2 million and $0.6 million, respectively, in restructuring expense for the three and nine months ended September 30, 2018. There were no restructuring expenses for the three and nine months ended September 30, 2018.

As of July 12, 2019, the Company has no employees.

The following table summarizes the charges related to the restructuring activities as of September 30, 2019:

(in thousands)	Accrued Restructuring Expenses at December 31, 2018	Expenses	Less: Payments	Accrued Restructuring Expenses at September 30, 2019
Severance, benefits and related costs due to workforce reduction	$ 921	$ 4,825	$ (5,624)	$ 122
Totals	$ 921	$ 4,825	$ (5,624)	$ 122

11. Investment in Silver Creek

On August 20, 2010, the Company acquired a controlling financial interest in Silver Creek. At such time, the Company had the ability to direct the activities of Silver Creek that most significantly impacted Silver Creek's economic performance through its ownership percentage and through the board of director seats controlled by the Company. As such, the Company consolidated Silver Creek in its financial statements. Since the Company acquired its financial interest, Silver Creek has raised funding through the issuance of preferred stock and convertible promissory notes. The Company has not participated in any Silver Creek financings nor has it provided any funding.

During the third quarter of 2017, Silver Creek completed its Series C preferred stock financing, reducing the Company's ownership percentage in Silver Creek below 50% and resulting in the Company no longer controlling the Silver Creek board of directors. Accordingly, the Company determined that it was no longer the primary beneficiary of Silver Creek and deconsolidated Silver Creek from its financial statements on July 13, 2017. Starting on July 14, 2017, the Company accounted for its investment in Silver Creek under the equity method of accounting since the Company had the ability to exercise significant influence over Silver Creek. Under the equity method of accounting, the Company has recorded its proportionate share of Silver Creek's losses in its results of operations with a corresponding decrease in the carrying value of the investment.

As of May 7, 2019, the carrying value of the Company's investment in Silver Creek was $6.4 million. On May 7, 2019, the Company sold its entire equity position in Silver Creek for $7.8 million. Accordingly, a $1.4 million of gain on sale of its equity investment was recognized during the nine months ended September 30, 2019 within other (expense) income, net in the condensed consolidated statement of operations and comprehensive loss.

12. 14ner Sales Transaction

On July 12, 2019, the Company completed the 14ner Sale. In connection with the 14ner Sale, the Company received an upfront cash payment of $3.5 million and recognized in gain on sale of assets during the three and nine months ended September 30, 2019. The Company is also eligible to receive up to $54.5 million in additional potential development, regulatory approval and commercial-based milestone payments, consisting of:

- $3.0 million for achievement of the primary endpoint in the first registrational clinical study of either MM-121 or MM-111;
- Up to $16.5 million in total payments for the achievement of various regulatory approval and reimbursement-based milestones in the United States, Europe and Japan; and
- Up to $35.0 million in total payments for achieving various cumulative worldwide net sales targets between $100.0 million and $300.0 million for MM-121 and MM-111.

13. Recent Accounting Pronouncements

In February 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2016-02, "Leases (Topic 842)" ("ASU 2016-02"), which establishes principles that lessees and lessors shall apply to report useful information to users of financial statements about the amount, timing and uncertainty of cash flows arising from a lease. The most notable change will be lessees recognizing an asset and liability on their balance sheet for operating leases. In 2018, the FASB issued ASU 2018-01 and ASU 2018-11, which collectively add two practical expedients, provide a second modified retrospective transition method which does not require retrospective adjustment of prior periods, and provide certain narrow scope improvements to the new lease guidance. ASU 2016-02 and the amending ASU's are effective for the Company for annual periods beginning after December 15, 2018 and interim periods therein, with early adoption permitted. The Company adopted the new guidance as of January 1, 2019 using the modified retrospective transition method, which does not require restatement of prior periods, for all leases existing as of the adoption date. As described in Note 3, "Leases," the adoption of this new guidance did not have a material impact on the Company's condensed consolidated financial statements.

In June 2016, the FASB issued ASU 2016-13, "Financial Instruments – Credit Losses (Topic 326): *Measurement of Credit Losses on Financial Instruments*," which represents a new credit loss standard that will change the impairment model for most financial assets and certain other financial instruments. Specifically, this guidance will require entities to utilize a new "expected loss" model as it relates to trade and other receivables. In addition, entities will be required to recognize an allowance for estimated credit losses on available-for-sale debt securities, regardless of the length of time that a security has been in an unrealized loss position. This guidance will be effective for annual reporting periods beginning after December 15, 2019, including interim periods within those annual reporting periods, and early adoption is permitted. The Company is currently evaluating the potential impact that the adoption of this guidance may have on the condensed consolidated financial statements.

In August 2018, the FASB issued ASU No. 2018-13, "Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement" ("ASU 2018-13"). This standard eliminates, adds and modifies certain disclosure requirements for fair value measurements as part of its disclosure framework project. ASU 2018-13 is effective for annual reporting periods beginning after December 15, 2019 and interim periods within those annual periods and early adoption is permitted. The Company is currently evaluating the impact that the adoption of this guidance may have on its condensed consolidated financial statements.

From time to time, new accounting pronouncements are issued by the FASB or other standard setting bodies that the Company adopts as of the specified effective date. Unless otherwise discussed above, the Company does not believe that the adoption of recently issued standards has or may have a material impact on the Company's condensed consolidated financial statements or disclosures.

14. Subsequent Events

In accordance with ASC 855-10 the Company has analyzed its operations subsequent to September 30, 2019 to the date these financial statements were issued, and has determined that it does not have any material subsequent events to disclose in these financial statements.

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations.

The following discussion of our financial condition and results of operations should be read in conjunction with our financial statements and the notes to those financial statements appearing elsewhere in this Quarterly Report on Form 10-Q and the audited consolidated financial statements and notes thereto and management's discussion and analysis of financial condition and results of operations for the year ended December 31, 2018 included in our Annual Report on Form 10-K. This discussion contains forward-looking statements that involve significant risks and uncertainties. As a result of many factors, such as those set forth in Part II, Item 1A. Risk Factors of this Quarterly Report on Form 10-Q, which are incorporated herein by reference, our actual results may differ materially from those anticipated in these forward-looking statements.

Overview

We are a biopharmaceutical company based in Cambridge, Massachusetts that is entitled to receive up to $455.0 million in contingent milestone payments related to our sale of ONIVYDE® to Ipsen S.A., or Ipsen, in April 2017 and up to $54.5 million in contingent milestone payments related to our sale of MM-121 and MM-111 to 14ner Oncology, Inc., or 14ner, in July 2019. We do not have any ongoing research or development activities and are seeking potential acquirers for our remaining preclinical and clinical assets. We do not have any employees and instead use external consultants for the operation of our company.

On April 3, 2017, we completed the sale to Ipsen, the Ipsen sale of ONIVYDE and MM-436, or the commercial business. In connection with the Ipsen sale, we are eligible to receive up to $450.0 million in additional regulatory approval-based milestone payments. We are also eligible to receive a remaining $5.0 million milestone payment that may become payable for the ex-U.S. development and commercialization of ONIVYDE pursuant to a license and collaboration agreement, or the Servier agreement, between Ipsen and Les Laboratoires Servier SAS, or Servier (as assignee from Shire plc). We entered into the Servier agreement in 2014, and on April 3, 2017, the Servier agreement was assigned to Ipsen in connection with the completion of the Ipsen sale. To date, we have received $28.0 million of the potential $33.0 million in milestone payments under the Servier agreement.

The remaining up to $455.0 million in potential milestone payments resulting from the Ipsen sale consist of:

- $5.0 million upon Ipsen and Servier's joint decision to progress their ongoing multi-part clinical trial evaluating ONIVYDE in small-cell lung cancer, or SCLC, into the second randomized portion of the trial focused on efficacy;
- $225.0 million upon approval by the U.S. Food and Drug Administration, or FDA, of ONIVYDE for the first-line treatment of metastatic adenocarcinoma of the pancreas, subject to certain conditions;
- $150.0 million upon approval by the FDA of ONIVYDE for the treatment of SCLC after failure of first-line chemotherapy; and
- $75.0 million upon approval by the FDA of ONIVYDE for an additional indication unrelated to those described above.

On May 30, 2019, we announced the completion of our review of strategic alternatives, following which our board of directors implemented a series of measures designed to extend our cash runway into 2027 and preserve our ability to capture the potential milestone payments resulting from the Ipsen sale. We have based this estimate on assumptions that may prove to be wrong, and we could use our financial resources sooner than we currently expect. In connection with that announcement, we discontinued the discovery efforts on our remaining preclinical programs: MM-401, an agonistic antibody targeting a novel immuno-oncology target, TNFR2; and MM-201, a highly stabilized agonist-Fc fusion protein targeting death receptors 4 and 5. We are seeking potential acquirers for our remaining preclinical and clinical assets.

The termination of our executive management team and all other employees was substantially completed by June 28, 2019 and fully completed by July 12, 2019. As of July 12, 2019, we do not have any employees. We have engaged external consultants to run our day-to-day operations. We have also entered into consulting agreements with certain former members of our executive management team who are supporting our relationship with current partners, assisting with the potential sale of remaining preclinical and clinical assets, and assisting with certain legal matters and the continued wind-down of operations.

In May 2019, we monetized certain assets to strengthen our cash position. This included the sale of our entire equity position in Silver Creek Pharmaceuticals, Inc., or Silver Creek, resulting in $7.8 million in cash, and the sale of laboratory equipment from our research and development operations, resulting in approximately $1.4 million in cash.

On April 15, 2019, we repaid in full all principal, accrued and unpaid interest, fees, costs and expenses under our Loan and Security Agreement, or loan agreement, with Hercules Capital, Inc., or Hercules, in an aggregate amount equal to $16.0 million.

On July 12, 2019, we completed the sale to 14ner, or the 14ner sale, of our anti-HER3 antibody programs, MM-121 (seribantumab) and MM-111. In connection with the 14ner sale, we received an upfront cash payment of $3.5 million and are eligible to receive up to $54.5 million in additional potential development, regulatory approval and commercial-based milestone payments, consisting of:

- $3.0 million for achievement of the primary endpoint in the first registrational clinical study of either MM-121 or MM-111;
- Up to $16.5 million in total payments for the achievement of various regulatory approval and reimbursement-based milestones in the United States, Europe and Japan; and
- Up to $35.0 million in total payments for achieving various cumulative worldwide net sales targets between $100.0 million and $300.0 million for MM-121 and MM-111.

On July 25, 2019, our board of directors announced, authorized and declared a special cash dividend of $20.0 million to holders of our common stock. The special dividend was payable on September 5, 2019 to stockholders of record as of the close of business on August 28, 2019. The special dividend resulted in a decrease to additional paid-in capital.

We previously devoted substantially all of our resources to our drug discovery and development efforts, including conducting clinical trials for our product candidates, protecting our intellectual property and providing general and administrative support for these operations. We have financed our operations primarily through private placements of convertible preferred stock, collaborations, public offerings of our securities, secured debt financings, sales of ONIVYDE and the Ipsen sale.

As of September 30, 2019, we had unrestricted cash and cash equivalents of $20.9 million. We expect that our cash and cash equivalents as of September 30, 2019 will be sufficient to continue our operations into 2027, when we estimate the longest-term potential Ipsen milestone may be achieved.

We have never been profitable and, as of September 30, 2019, we had an accumulated deficit of $543.9 million. Our net loss was $20.6 million and $31.6 million for the nine months ended September 30, 2019 and 2018, respectively. We do not expect to have any research and development expenses going forward.

Financial Operations Overview

Research and development expenses

Research and development expenses consisted of costs associated with our preclinical research activities, conduct of clinical trials, manufacturing development efforts and activities related to regulatory filings. Our research and development expenses consisted of:

- employee salaries and related expenses, which included stock-based 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 third-party manufacturing organizations and consultants, including costs associated with manufacturing product prior to product approval;
- license fees for and milestone payments related to in-licensed products and technologies; and
- facilities, depreciation and other allocated expenses, which included direct and allocated expenses for rent and maintenance of facilities, depreciation of leasehold improvements and equipment, and laboratory and other supplies.

We expensed research and development costs as incurred. As a result of completing the closeout of our SHERLOC, SHERBOC and MM-310 clinical trials, the discontinuation of the discovery efforts for our remaining preclinical programs, MM-401 and MM-201, and the termination of all remaining employees as of July 12, 2019, we no longer have any ongoing research or development activities. Accordingly, no research and development costs were recognized in the third quarter of 2019 and we do not anticipate incurring any such costs in future periods.

We have historically used our employee and infrastructure resources across multiple research and development programs. We tracked expenses related to our most advanced product candidates on a per project basis. Accordingly, we allocated internal employee-related and infrastructure costs, as well as third-party costs, to each of these programs. We do not allocate to specific development programs either stock-based compensation expense or expenses related to preclinical programs. Costs that were not directly attributable to specific clinical programs, such as 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 research and development expenses allocated to each clinical product candidate, for the three and nine months ended September 30, 2019 and 2018:

	Three Months Ended September 30,		Nine Months Ended September 30,	
(in thousands)	2019	2018	2019	2018
MM-121	$ —	$ 7,898	$ 3,584	$ 22,496
MM-310	—	1,102	1,826	2,460
Preclinical, general research and discovery	—	3,553	5,162	9,689
Legacy programs	—	150	304	4,228
Stock-based compensation	—	256	224	870
Total research and development expenses	$ —	$ 12,959	$ 11,100	$ 39,743

During the second quarter of 2019 we ceased all research and development activities related to all of our programs listed above and are actively pursuing the sale of any of our remaining program assets.

MM-121 (seribantumab)

In February 2015, we initiated the global, open-label, biomarker-selected, Phase 2 randomized SHERLOC clinical trial evaluating MM-121 in combination with docetaxel, versus docetaxel alone, in patients with heregulin positive non-small cell lung cancer. On October 19, 2018, we announced the termination of the SHERLOC clinical trial based on an interim analysis triggered by the occurrence of 75% of events required for trial completion, which demonstrated that the addition of MM-121 to docetaxel did not improve progression free survival over docetaxel alone in this patient population.

In February 2018, we dosed the first patient in our global, double-blinded, placebo-controlled, biomarker-selected Phase 2 randomized SHERBOC clinical trial evaluating MM-121 in combination with fulvestrant, versus fulvestrant alone, in patients with heregulin positive, hormone receptor positive, ErbB2 (HER2) negative, metastatic breast cancer. On November 7, 2018, we announced that we were discontinuing development of all ongoing MM-121 programs, including terminating the SHERBOC clinical trial based on the results of the interim analysis of the SHERLOC clinical trial. The costs for MM-121 were expensed as incurred, as we believed the costs to maintain the intellectual property for MM-121 increased the likelihood of selling or out-licensing the program.

On July 12, 2019, we completed the 14ner sale of our anti-HER3 antibody programs, MM-121 (seribantumab) and MM-111.

MM-310

In March 2017, we initiated a Phase 1 clinical trial of MM-310 to evaluate its safety and preliminary activity in patients with solid tumors and to identify the maximum tolerated dose. On November 7, 2018, we announced an amendment to the clinical trial to extend the dosing interval of MM-310 from every three weeks to every four weeks as a result of emerging cumulative grade 3 peripheral neuropathy following multiple cycles of treatment observed in three patients. On April 4, 2019, we announced that we were discontinuing development of MM-310 as a result of a comprehensive review of available safety data from the Phase 1 clinical trial. Based on emerging data since the amendment of the clinical protocol in late 2018, we concluded that the trial would not be able to reach an optimal therapeutic index for MM-310. The MM-310 program was discontinued and we do not expect to incur any future costs related to MM-310.

Legacy Programs

In January 2017, we announced the completion of a strategic pipeline review as a result of which many product candidates in our pipeline were put on hold until such time as we determine the conditions are appropriate to invest in them. These molecules include MM-302, MM-151, MM-131 and certain early stage discovery efforts.

In June 2018, we announced top-line results from the global, double-blinded, placebo-controlled, Phase 2 randomized CARRIE clinical trial of MM-141, showing that the trial did not meet its primary or secondary efficacy endpoints in patients who received MM-141 in combination with nab-paclitaxel and gemcitabine, compared to nab-paclitaxel and gemcitabine alone. Based on these results, we are not devoting additional resources to and have ceased all of our development activities for MM-141.

General and administrative expenses

General and administrative expenses consist primarily of salaries and other related costs for personnel, including stock-based compensation expenses and benefits, in our legal, intellectual property, business development, finance, information technology, corporate communications, investor relations and human resources departments. Other general and administrative expenses include costs for employee training and development, board of directors costs, depreciation, insurance expenses, facility-related costs not otherwise included in research and development expenses, legal and professional fees, and accounting and information technology services fees.

Restructuring expenses

As a result of the corporate restructuring activities we announced on November 7, 2018, April 30, 2019 and May 30, 2019, we recognized total restructuring expenses of $4.8 million for the nine months ended September 30, 2019, related to one-time employee termination benefits comprised of severance, benefits and related costs, all of which are expected to result in cash expenditures. Approximately $0.8 million and $5.6 million in payments were made during the three and nine months ended September 30, 2019, respectively. The remaining $0.1 million as of September 30, 2019 is expected to be paid in the fourth quarter of 2019 and first quarter of 2020.

As a result of the restructuring we announced on January 8, 2017, we paid $0.2 million and $0.6 million in restructuring expense for the three and nine months ended September 30, 2018, respectively. There were no restructuring expenses for the three and nine months ended September 30, 2018.

Interest income

Interest income consists primarily of interest income associated with our marketable securities.

Interest expense

Interest expense for the three and nine months ended September 30, 2019 and 2018 consisted primarily of cash and non-cash interest related to the loan agreement with Hercules that we entered into on July 2, 2018 as well as the loss we recorded on the extinguishment of the loan agreement in the second quarter of 2019.

Other (expense) income, net

Other (expense) income, net consists primarily of our proportionate share of losses from our equity method investment in Silver Creek as well as the gain we recorded upon the sale of the investment in the second quarter of 2019.

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 condensed consolidated financial statements, which we have prepared in accordance with the rules and regulations of the Securities and Exchange Commission, or the SEC, and generally accepted accounting principles in the United States, or GAAP. The preparation of these condensed 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 expenses during the reporting periods. We evaluate our estimates and judgments on an ongoing basis. 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.

Our critical accounting policies and the methodologies and assumptions we apply under them have not materially changed since March 6, 2019, the date we filed our Annual Report on Form 10-K for the year ended December 31, 2018. For more information on our critical accounting policies, refer to our Annual Report on Form 10-K for the year ended December 31, 2018.

Results of Operations

Comparison of the three months ended September 30, 2019 and 2018

(in thousands)	Three Months Ended September 30, 2019	2018
Operating expenses:		
Research and development expenses	$ —	$ 12,959
General and administrative expenses	4,346	3,777
Gain on sales of assets	(3,500)	—
Total operating expenses	846	16,736
Loss from operations	(846)	(16,736)
Interest income	140	306
Interest expense	—	(472)
Other (expense) income, net	1	(237)
Net loss	$ (705)	$ (17,139)

Research and development expenses

We have ceased all research and development activities and no research and development expenses were recognized for the three months ended September 30, 2019 compared to $13.0 million for the three months ended September 30, 2018, a decrease of $13.0 million, or 100.0%. We do not expect to incur any research and development cost in future periods.

General and administrative expenses

General and administrative expenses were $4.3 million for the three months ended September 30, 2019 compared to $3.8 million for the three months ended September 30, 2018, an increase of $0.5 million, or 13.2%. This increase was primarily attributable to legal and other professional fees resulting from the contested proxy process with respect to our 2019 annual meeting of stockholders. We expect general and administrative costs to decrease in future periods as we look to sell our remaining preclinical and clinical assets and continue to streamline our operations.

Gain on sales of assets

Gain on sales of assets was $3.5 million for the three months ended September 30, 2019, was attributable to the sale of our anti-HER3 antibody programs, MM-121 (seribantumab) and MM-111 to 14ner in July 2019.

Interest income

Interest income was $0.1 million for the three months ended September 30, 2019 compared to $0.3 million for the three months ended September 30, 2018, primarily attributable to the interest income associated with our marketable securities and interest bearing cash and cash equivalents accounts.

Interest expense

We did not recognize interest expense for the three months ended September 30, 2019. Interest expense was $0.5 million for the three months ended September 30, 2018, primarily attributable to the loan with Hercules which was repaid in April 2019. We do not expect to incur interest expense in the future.

Other (expense) income, net

Other (expense) income, net was less than $0.1 million of income for the three months ended September 30, 2019 compared to $0.2 million of expense for the three months ended September 30, 2018. The income of less than $0.1 million for the three months ended September 30, 2019 represents net foreign exchange gains. The $0.2 million of expense for the three months ended September 30, 2018, was primarily attributable to our proportionate share of losses from our equity method investment in Silver Creek.

Comparison of the nine months ended September 30, 2019 and 2018

(in thousands)	Nine Months Ended September 30, 2019	2018
Operating expenses:		
Research and development expenses	$ 11,100	$ 39,743
General and administrative expenses	13,958	11,560
Gain on sales of assets	(4,910)	—
Total operating expenses	20,148	51,303
Loss from continuing operations	(20,148)	(51,303)
Interest income	712	863
Interest expense	(1,527)	(472)
Other income (expense), net	370	(1,778)
Net loss from continuing operations	$ (20,593)	$ (52,690)

Research and development expenses

Research and development expenses were $11.1 million for the nine months ended September 30, 2019 compared to $39.7 million for the nine months ended September 30, 2018, a decrease of $28.6 million, or 72.1%. This decrease was primarily attributable to:

- $18.9 million decrease in expenses related to the discontinuation of the MM-121 clinical trials;
- $4.5 million decrease in expenses related to our preclinical and general research and discovery primarily due to our reduction in headcount;
- $3.9 million decrease in expenses related to legacy programs mainly due to the discontinuation of the MM-141 clinical trial; and
- $0.6 million decrease in stock-based compensation related to reduction in headcount due to restructuring; and
- $0.6 million decrease in expense related to the discontinuation of the MM-310 clinical trial.

General and administrative expenses

General and administrative expenses were $14.0 million for the nine months ended September 30, 2019 compared to $11.6 million for the nine months ended September 30, 2018, an increase of $2.4 million, or 20.7%. This increase was primarily attributable to the timing of corporate expenses, legal professional expenses, additional cost incurred associated with the filing of our preliminary and definitive proxy statements for our 2019 annual meeting of stockholders and recognition of restructuring expenses related to the November 7, 2018, April 30, 2019 and May 30, 2019 restructuring announcements.

Gain on sales of assets

Gain on sales of assets was $4.9 million for the nine months ended September 30, 2019, primarily attributable to the sale of our anti-HER3 antibody programs, MM-121 (seribantumab) and MM-111 to 14ner for $3.5 million and sales of our laboratory equipment and office furniture of $1.4 million.

Interest income

Interest income was $0.7 million for the nine months ended September 30, 2019 compared to $0.9 million for the nine months ended September 30, 2018, primarily attributable to the interest income associated with our marketable securities and interest bearing cash and cash equivalents accounts.

Interest expense

Interest expense was $1.5 million for the nine months ended September 30, 2019, which primarily represents the $1.0 million loss on extinguishment we recorded upon repayment of the loan agreement with Hercules. Interest expense was $0.5 million for the nine months ended September 30, 2018, primarily attributable to the loan with Hercules which was paid in full in April 2019.

Other (expense) income, net

Other (expense) income, net was $0.4 million of income for the nine months ended September 30, 2019 compared to $1.8 million of expense for the nine months ended September 30, 2018. The income of $0.4 million for the nine months ended September 30, 2019 represents the $1.4 million gain we recorded on the sale of our equity method investment in Silver Creek offset by our proportionate share of Silver Creek's losses which we recorded prior to the sale of our investment. The $1.8 million of expense for the nine months ended September 30, 2018, was primarily attributable to our proportionate share of losses from our equity method investment in Silver Creek.

Liquidity and Capital Resources

Sources of liquidity

We have financed our operations through September 30, 2019 primarily through private placements of convertible preferred stock, collaborations, public offerings of our securities, secured debt financings, sales of ONIVYDE and the Ipsen sale. Through September 30, 2019, we have received $580.7 million from the Ipsen sale, $268.2 million from the sale of convertible preferred stock and warrants, $126.7 million of net proceeds from the sale of common stock in our initial public offering and a July 2013 follow-on public offering, $38.6 million of net proceeds from our 2015 "at the market offering" program, $39.6 million of net proceeds from a secured debt financing, $120.6 million of net proceeds from the issuance of the convertible notes in our July 2013 public offering, $168.5 million of net proceeds from the issuance of the 2022 notes, $492.5 million of upfront license fees, milestone payments, reimbursement of research and development costs and manufacturing services and other payments from our collaborations, $68.9 million of cash receipts related to ONIVYDE sales, and $28.0 million in milestone payments related to the development and commercialization of ONIVYDE. As of September 30, 2019, we had unrestricted cash and cash equivalents of $20.9 million.

On April 15, 2019, we repaid in full all principal, accrued and unpaid interest, fees, costs and expenses under the loan agreement with Hercules in an aggregate amount equal to $16.0 million. We had previously borrowed $15.0 million under the loan agreement. See Note 6, "Notes Payable," in the accompanying notes to the condensed consolidated financial statements.

On July 25, 2019, our board of directors announced, authorized and declared a special cash dividend of $20.0 million on our common stock. The special dividend was paid on September 5, 2019 to stockholders of record as of the close of business on August 28, 2019.

Cash flows

The following table provides information regarding our cash flows for the nine months ended September 30, 2019 and 2018:

	Nine Months Ended September 30,	
(in thousands)	**2019**	**2018**
Net cash used in operating activities	$ (28,728)	$ (46,696)
Net cash provided by (used in) investing activities	64,825	(11,775)
Net cash (used in) provided by financing activities	(35,902)	14,632
Net increase (decrease) in cash, cash equivalents and restricted cash	$ 195	$ (43,839)

Operating activities

Cash used in operating activities of $28.7 million during the nine months ended September 30, 2019 was primarily a result of our $20.6 million net loss from operations and a net decrease in assets and liabilities of $7.1 million. The net decrease in operating assets and liabilities during the nine months ended September 30, 2019 was primarily driven by decreases in accounts payable, accrued expenses and other and an increase to prepaid expenses and other assets. This decrease was offset by non-cash items, including $2.2 million in depreciation, $1.8 million of stock-based compensation expense and $1.0 million of loss on extinguishment of debt and amortization, offset by $3.5 million gain on sale of in progress research and development asset, $2.0 million gain on disposal of fixed assets and $0.4 million in gain on equity method investment. Cash used in operating activities of $46.7 million during the nine months ended September 30, 2018 was primarily a result of our $47.9 million net loss from operations and a net decrease in assets and liabilities of $0.6 million. The net decrease in operating assets and liabilities during the nine months ended September 30, 2018 was primarily driven by increases in accounts payable, accrued expenses and other and income taxes payable offset by decreases to prepaid expenses and other current assets and deferred rent. This decrease was offset by non-cash items, including $4.8 million benefit from intraperiod tax allocation, $3.2 million in depreciation and amortization, $2.3 million of stock-based compensation expense, $1.7 million in loss on equity method investment and $0.5 million non-cash activity related to discontinued operations.

Investing activities

Cash provided by investing activities of $64.8 million during the nine months ended September 30, 2019 was primarily due to proceeds from maturities and sales of marketable securities totaling $51.5 million, proceeds from sale of equity method investment totaling $7.8 million, proceeds on sale of in progress research and development asset totaling $3.5 million and proceeds on sale of equipment totaling $2.0 million. Cash used in investing activities of $11.8 million during the nine months ended September 30, 2018 was primarily due to purchases of marketable securities totaling $76.9 million offset by proceeds from maturities and sales of marketable securities totaling $42.2 million and milestone payments relating to the sale of the commercial business totaling $23.0 million.

Financing activities

Cash used in financing activities of $35.9 million during the nine months ended September 30, 2019 was primarily due to the cash dividend paid of $20.0 million and repayment of debt of $15.0 million and payment of debt extinguishment costs of approximately $1.0 million. Cash provided by financing activities of $14.6 million during the nine months ended September 30, 2018 was due to proceeds from our loan agreement with Hercules.

Funding requirements

We have incurred significant expenses and operating losses to date. On May 30, 2019, we announced the completion of our review of strategic alternatives, following which our board of directors implemented a series of measures designed to extend our cash runway into 2027 and preserve our ability to capture the potential milestone payments resulting from the Ipsen sale. In connection with that announcement, we discontinued the discovery efforts on our remaining preclinical programs and implemented a reduction in headcount resulting in the termination of all remaining employees as of July 12, 2019. Our future capital requirements will depend on many factors, including:

- whether we realize the anticipated cost savings in connection with our restructuring efforts;
- our ability to successfully divest our product candidates and other assets;
- the timing and amount of potential milestone payments related to ONIVYDE that we may receive from Ipsen and Servier;
- the timing and amount of potential milestone payments that we may receive from 14ner;
- the timing and amount of any special dividend to our stockholders that our board of directors may declare;
- the timing and amount of general and administrative expenses required to continue to operate our company;
- the extent to which we owe any taxes for current, future or prior periods, including as a result of any audits by taxing authorities;
- the extent to which we invest in any future research or development activities of our product candidates;
- 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
- the costs associated with operating as a public company and maintaining compliance with exchange listing and SEC requirements.

We expect that we would finance any future cash needs through a combination of divestitures of our product candidates or other assets, equity offerings and debt financings. There can be no assurance as to the timing, terms or consummation of any divestiture or financing. We do not have any committed external sources of funds. 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 the rights of our stockholders. 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 arrangements with third parties, we may have to relinquish valuable rights to our future revenue streams or product candidates.

Contractual Obligations and Commitments

On April 15, 2019, we repaid in full all principal, accrued and unpaid interest, fees, costs and expenses under the loan agreement with Hercules in an aggregate amount equal to $16.0 million. We had previously borrowed $15.0 million under the loan agreement. See Note 6, "Notes Payable," in the accompanying notes to the condensed consolidated financial statements.

Other than the above, there were no material changes to our contractual obligations and commitments described under Management's Discussion and Analysis of Financial Condition and Results of Operations in our Annual Report on Form 10-K for the year ended December 31, 2018, as filed with the SEC on March 6, 2019.

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 SEC rules.

Recent Accounting Pronouncements

See Note 13, "Recent Accounting Pronouncements," in the accompanying notes to the condensed consolidated financial statements for a full description of recent accounting pronouncements.

Item 3. Quantitative and Qualitative Disclosures About Market Risk.

We invest in a variety of financial instruments, principally cash deposits, money market funds, securities issued by the U.S. government and its agencies and corporate debt securities. 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. Due to the short-term duration of our investment portfolio and the low risk profile of our investments, an immediate 10% change in interest rates would not have a material effect on the fair market value of our portfolio. We have the ability and intention to hold our investments until maturity, and therefore, 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 currently have any auction rate or mortgage-backed securities. We do not believe our cash and cash equivalents have significant risk of default or illiquidity, however we cannot provide absolute assurance that in the future our investments will not be subject to adverse changes in market value.

Item 4. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Principal Executive Officer and Principal Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as of September 30, 2019. The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended, or the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company's management, including its principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of our disclosure controls and procedures as of September 30, 2019, our Principal Executive Officer and Principal Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

Changes in Internal Control Over Financial Reporting

On May 30, 2019, we announced the completion of our review of strategic alternatives, following which our board of directors implemented a series of measures designed to extend our cash runway for several years and preserve our ability to capture the potential milestone payments resulting from the Ipsen sale. In connection with the implementation of these measures, we commenced efforts to terminate our executive management team and all other employees, which was fully completed by July 12, 2019. We do not have any employees. We have engaged external consultants to run our day-to-day operations. We have also entered into consulting agreements with certain former members of our executive management team to assist with this transition.

In connection with the transition of the management of the day-to-day operations of the Company to external consultants, we migrated our enterprise resource planning system to a less complex accounting system. Due to the termination of all employees, we have also significantly modified our internal control procedures over financial reporting to reflect the reduction in transaction volume and reliance on external consultants to manage the day-to-day operations of the Company. In connection with these significant changes to the business and the control environment, we have updated our risk assessment of internal controls over financial reporting. During the quarter ended September 30, 2019, we have taken steps to redesign and implement internal controls over the cash disbursements process and the accounting closing and reporting processes. While we believe the controls are effectively designed to provide reasonable assurance on the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP, we are still in the process of designing internal controls over information technology general controls, the review of the financial statements and related account reconciliations.

Other than the above, no change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) occurred during the three months ended September 30, 2019 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II

OTHER INFORMATION

Item 1A. Risk Factors.

The following risk factors and other information included in this Quarterly Report on Form 10-Q should be carefully considered. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties not presently known to us or that we presently deem less significant may also impair our business operations. Please see page 1 of this Quarterly Report on Form 10-Q for a discussion of some of the forward-looking statements that are qualified by these risk factors. If any of the following risks occur, our business, financial condition and results of operations could be materially and adversely affected.

Risks Related to Our Business Strategy

Our business strategy depends substantially upon our ability to receive future contingent milestone payments.

Our business strategy depends substantially upon our ability to receive future milestone payments from Ipsen, Servier and 14ner. On May 30, 2019, we announced the completion of our review of strategic alternatives, following which our board of directors implemented a series of measures designed to extend our cash runway into 2027 and preserve our ability to capture the potential milestone payments resulting from the Ipsen sale. We are entitled to receive up to $455.0 million in contingent milestone payments related to our sale of ONIVYDE to Ipsen and up to $54.5 million in contingent milestone payments related to our sale of MM-121 and MM-111 to 14ner. We do not have any ongoing research or development activities. Any failure to achieve such milestones or a perception that the milestones may not be achieved will materially and adversely affect the company and the value of the common stock.

Even if some or all of the milestones set forth in the Ipsen sale agreement, Servier agreement and 14ner agreement are achieved, it may take significantly longer than we anticipate and could require us to raise additional funding in order to maintain our ability to receive payment for such milestones.

Achievement of the milestones set forth in the Ipsen sale agreement, the Servier agreement and the 14ner agreement are not guaranteed and there is significant risk that some or all of such milestones will not be achieved when anticipated, if at all. If achievement of the milestones is delayed beyond what we currently anticipate, it could require us to raise additional funds in order to maintain our ability to receive payment for the potential future achievement of such milestones. Sources of funds may not be available or, if available, may not be available on terms satisfactory to us. Raising additional funds could be dilutive or otherwise disadvantageous to our stockholders. Any delay in receipt of the potential benefit to the company or our stockholders resulting from achievement of such milestones, in addition to any additional uncertainty as to whether such milestones will be achieved at all, would materially and adversely affect the company and the value of the common stock.

Time and costs associated with winding down our research and development activities and any return of cash to stockholders may be significant.

There are significant costs associated with winding down our normal historic operations, such as separation of employees and termination of contracts, all of which have and may in the future reduce our cash resources. Additionally, in connection with the special cash dividend paid on September 5, 2019 to our stockholders of record as of August 28, 2019, we incurred third party costs associated with the distribution of such dividend and may incur such costs with any future distribution of cash, if declared by our board of directors, all of which costs have reduced and would reduce our cash resources.

We rely on external consultants for the execution of our business strategy.

We do not have any employees and instead use a limited number of external consultants for the operation of our company, any of whom may terminate their consultancy with us at any time. The loss of some or all of our consultants could delay or inhibit our ability to run our operations or consummate any divestitures of our remaining assets or could interfere with our ability to receive and distribute any potential milestones from Ipsen or 14ner.

We may be treated as a "public shell" company which could have negative consequences, including potential Nasdaq delisting of our common stock.

Our common stock is currently listed on the Nasdaq Global Market. We do not intend to delist our common stock from Nasdaq. However, following our cessation of normal business operations, we may be treated as a "public shell" company under the Nasdaq rules and the Securities Act of 1933, as amended, or the Securities Act, or the Exchange Act. Although Nasdaq evaluates whether a listed company is a public shell company based on a facts and circumstances determination, a Nasdaq-listed company with no or nominal operations and either no or nominal assets, assets consisting solely of cash and cash equivalents, or assets consisting of any amount of cash and cash equivalents and nominal other assets is generally considered to be a public shell company. Listed companies determined to be public shell companies by Nasdaq may be subject to delisting proceedings or additional and more stringent listing criteria.

If our common stock is delisted from Nasdaq, we would expect that such securities would qualify for trading over-the-counter, or OTC, in the United States on a market colloquially referred to as the "Pink Sheets." Securities quoted OTC are generally subject to lesser requirements than securities listed for trading on a U.S. national stock exchange, such as Nasdaq, including reduced corporate governance and public reporting standards.

If Nasdaq should delist our common stock from trading, a reduction in some or all of the following may occur, each of which could have a material adverse effect on holders of our common stock: the liquidity of our common stock; the market price of the common stock; the number of institutional and general investors that will consider investing in the common stock; the number of investors in general that will consider investing in the common stock; the number of market makers in our common stock; the availability of information concerning the trading prices and volume of the common stock; and the number of broker-dealers willing to execute trades in our common stock. In addition to the foregoing, there are certain consequences under the Securities Act of being a public shell company, including the unavailability of Rule 144 thereunder for the resale of restricted securities and the inability to utilize Form S-8 for the registration of employee benefit plan securities.

We have been, and in the future may be, subject to securities litigation, which is expensive and could divert our attention.

We have been, and may in the future be, subject to securities class action litigation. Securities litigation against us could result in substantial costs and divert our management's attention, which could seriously harm our business. For instance, a putative stockholder class action suit was filed by a purported stockholder of ours in the Superior Court of Massachusetts for the County of Middlesex against us and our directors. The case was captioned *Robert Garfield v. Merrimack Pharmaceuticals Inc., et al.*, or the Garfield Action. The Garfield Action complaint alleged that our directors breached their fiduciary duties by entering into the Ipsen sale agreement and that the definitive proxy statement relating to the Ipsen sale contained inadequate disclosures and omissions. Although we believed that the Garfield Action was without merit, to avoid the risk of the litigation delaying or adversely affecting the Ipsen sale and to minimize the expense of defending the litigation related to the Ipsen sale, we agreed to make supplemental disclosures related to the Ipsen sale and to pay the plaintiff's counsel $375,000 in attorney's fees in connection with the resolution of the Garfield Action. As a result, the plaintiff concluded that the claims in the Garfield Action were mooted, and the Garfield Action was dismissed with prejudice. Nonetheless, there can be no guarantee that we will not be the target of additional securities class action litigation in the future.

Actions of activist stockholders against us could be disruptive and potentially costly and the possibility that activist stockholders may seek changes that contest, or conflict with, our strategic direction could cause uncertainty about the strategic direction of our business.

Activist stockholders may from time to time attempt to effect changes in our strategic direction and, in furtherance thereof, may seek changes in how we are governed. While our board of directors and management strive to maintain constructive, ongoing communications with all of our stockholders, including activist stockholders, and welcomes their views and opinions with the goal of working together constructively to enhance value for all stockholders, activist campaigns that contest, or conflict with, our strategic direction could have an adverse effect on us because:

- responding to proxy contests and other actions by activist stockholders can disrupt our operations, be costly and time-consuming, and divert the attention of our board of directors and management from the pursuit of business strategies, which could adversely affect our results of operations and financial condition;
- perceived uncertainties as to our future direction as a result of changes to the composition of our board of directors may lead to the perception of a change in the direction of the business, instability or lack of continuity which may be exploited by our competitors, may result in the loss of potential business opportunities and make it more difficult to attract and retain qualified personnel and business partners;

- these types of actions could cause significant fluctuations in our stock price based on temporary or speculative market perceptions or other factors that do not necessarily reflect the underlying fundamentals and prospects of our business; and
- if individuals are elected to our board of directors with a specific agenda, it may adversely affect our ability to effectively implement our business strategy and create additional value for our stockholders.

In connection with our 2019 annual meeting of stockholders, an activist investor initially proposed its own slate of director candidates. That activist investor ultimately withdrew its slate of director candidates prior to the 2019 annual meeting of stockholders and all of our director nominees were elected at the 2019 annual meeting of stockholders. That activist investor continues to have a Schedule 13D filed with respect to us and it remains a possibility that such activist investor may still, from time to time, attempt to effect changes in our strategic direction and, in furtherance thereof, may seek changes in how we are governed.

Risks Related to the Sale and Divestiture of Assets

There can be no guarantee that Ipsen will comply with its obligation to use commercially reasonable efforts in connection with the development of ONIVYDE or that the milestones set forth in the Ipsen sale agreement or the Servier agreement will be achieved.

Ipsen has agreed to use commercially reasonable efforts to develop ONIVYDE in connection with obtaining the regulatory approval by the FDA of ONIVYDE for certain indications. There is no guarantee that Ipsen will undertake such development however, or that any of its efforts will lead to the successful approval of ONIVYDE for such additional indications or lead to achievement of the milestones set forth in the Ipsen sale agreement. We also do not have any right to receive updates on the progress of Ipsen's development of ONIVYDE beyond what Ipsen chooses to disclose publicly. The milestones set forth in the Ipsen sale agreement may not be achieved and we may not receive any future contingent payments.

Additionally, although the Ipsen sale agreement entitles us to receive certain net milestone payments of up to $33.0 million that may become payable under the Servier agreement, to date we have received only $28.0 million of such net milestone payments. Payment of the remaining $5.0 million is not guaranteed for the milestone related to the first patient dosed in a pivotal clinical trial of ONIVYDE in an indication other than pancreatic cancer, as the satisfaction of such milestone is based on a clinical trial being conducted by Ipsen and Servier and is therefore out of our control.

Our business strategy depends substantially upon our ability to receive future milestone payments from Ipsen and Servier. Any failure to achieve such milestones or a perception that the milestones may not be achieved will materially and adversely affect the company and the value of the common stock.

There can be no guarantee that 14ner will comply with its obligation to use commercially reasonable efforts in connection with the development of MM-121 and MM-111 or that the milestones set forth in the asset purchase agreement with 14ner will be achieved.

14ner has agreed to use commercially reasonable efforts to develop MM-121 and MM-111. However, there is no guarantee that 14ner will take the steps set forth in the asset purchase agreement with 14ner, or the 14ner agreement, or that any of its efforts will lead to the successful approval of MM-121 or MM-111 by the FDA or other regulatory bodies. The milestones set forth in the 14ner agreement may not be achieved and we may not receive any future contingent payments. Because our business strategy depends substantially upon our ability to receive future milestone payments, including from 14ner, any failure to achieve such milestones or a perception that the milestones may not be achieved will materially and adversely affect the company and the value of the common stock.

Ipsen did not assume any of the excluded liabilities under the Ipsen sale agreement.

Pursuant to the Ipsen sale agreement, Ipsen assumed only certain specified liabilities set forth in the Ipsen sale agreement and did not assume all of the liabilities associated with the commercial business. Certain liabilities remain with us post-closing. While we believe that we have adequately accrued for these liabilities or are adequately insured against certain of the risks associated with such excluded liabilities, we could incur additional expenditures in resolving any such liabilities. If we become subject to liability based upon such contractual obligations or otherwise and we are required to indemnify the counterparties, it could have a material adverse effect on our financial position.

14ner did not assume any of the excluded liabilities under the 14ner agreement.

Pursuant to the 14ner agreement, 14ner assumed only certain specified liabilities set forth in the 14ner agreement and did not assume all of the liabilities associated with MM-121 or MM-111. Certain liabilities remain with us post-closing. While we believe that we have adequately accrued for these liabilities or are adequately insured against certain of the risks associated with such excluded liabilities, we could incur additional expenditures in resolving any such liabilities. If we become subject to liability based upon such contractual obligations or otherwise and we are required to indemnify the counterparties, it could have a material adverse effect on our financial position.

The Ipsen sale agreement may expose us to contingent liabilities.

We have agreed to indemnify Ipsen for certain breaches of representations, warranties or covenants made by us in the Ipsen sale agreement and for certain specified existing litigation. We have agreed that if we cannot pay our indemnification obligations, Ipsen will have set-off rights against any future contingent payments. Indemnification claims by Ipsen could further materially and adversely affect our financial condition and/or significantly reduce any future contingent payments.

The 14ner agreement may expose us to contingent liabilities.

We have agreed to indemnify 14ner for certain breaches of representations, warranties or covenants made by us in the 14ner agreement. We have agreed that 14ner will have set-off rights against any future contingent payments. Indemnification claims by 14ner could materially and adversely affect our financial condition and/or significantly reduce any future contingent payments.

Risks Related to Our Financial Position and Need for Additional Capital

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

Since inception, we have incurred significant operating losses. Our net loss from continuing operations was $20.6 million for the nine months ended September 30, 2019. Our net loss from continuing operations before income tax benefit was $68.5 million for the year ended December 31, 2018 and $118.4 million for the year ended December 31, 2017. As of September 30, 2019, we had an accumulated deficit of $543.9 million. To date, we have financed our operations primarily through private placements of convertible preferred stock, collaborations, public offerings of our securities, secured debt financings, sales of ONIVYDE and the Ipsen sale. We have devoted substantially all of our efforts to research and development, including clinical trials and to commercialization of our first product, ONIVYDE, which was sold to Ipsen. We have not completed development of or commercialized any other product candidates or diagnostics other than ONIVYDE.

Although we are not actively developing product candidates and do not have any current plans to do so, to become and remain profitable, we would need to succeed in developing and commercializing products with significant market potential. This would require us to be successful in a range of challenging activities, including discovering product candidates, completing preclinical testing and clinical trials of our product candidates, obtaining regulatory approval for these product candidates and manufacturing, marketing and selling or partnering those products for which we may in the future seek and receive regulatory approval. We may never undertake or 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 our company and could impair our ability to raise capital, expand our business or diversify our product offerings, to the extent we undertake such activities, or continue our operations. A decline in the value of our company could also cause our stockholders to lose all or part of their investment.

We will need substantial additional funding in connection with any future product development efforts. 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 will need substantial additional funding in connection with any future product development efforts. Although we are not currently developing our product candidates and do not have any current plans to do so, we expect that we would incur significant research and development expenses to the extent that we decide to do so. In addition, we may need additional funding to execute our business strategy and maintain our ability to receive payment for some or all of the milestones set forth in the Ipsen sale agreement, the Servier agreement or the 14ner agreement. If we are unable to raise capital when needed or on attractive terms, we would be forced to delay, reduce or eliminate any such future research and development programs or commercialization efforts and/or we could be forced to revise or abandon our current business strategy.

Our future capital requirements will depend on many factors, including:

- whether we realize the anticipated cost savings in connection with our restructuring efforts;
- our ability to successfully divest our product candidates and other assets;
- the timing and amount of potential milestone payments related to ONIVYDE that we may receive from Ipsen and Servier;
- the timing and amount of potential milestone payments that we may receive from 14ner;
- the timing and amount of any special dividend to our stockholders that our board of directors may declare;
- the timing and amount of general and administrative expenses required to continue to operate our company;
- the extent to which we owe any taxes for current, future or prior periods, including as a result of any audits by taxing authorities;
- the extent to which we invest in any future research or development activities of our product candidates;
- 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
- the costs associated with operating as a public company and maintaining compliance with exchange listing and SEC requirements.

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, even if regulatory approval is obtained, achieve product sales of any of our product candidates. In addition, any of our product candidates, even if approved, may not achieve commercial success. If we undertake future development of our product candidates but fail to generate sufficient revenues from collaborations or the commercialization of any of our product candidates, 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 revenue streams or product candidates.

We expect that we would finance any future cash needs through a combination of divestitures of our product candidates or other assets, equity offerings and debt financings. There can be no assurance as to the timing, terms or consummation of any divestiture or financing. We do not have any committed external sources of funds. 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 the rights of our stockholders. 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 arrangements with third parties, we may have to relinquish valuable rights to our future revenue streams or product candidates.

On December 15, 2017, we filed a registration statement on Form S-3 with the SEC to allow the issuance of our securities from time to time in one or more offerings of up to $150,000,000 in aggregate dollar amount. This registration statement was declared effective by the SEC on January 5, 2018. If we are unable to raise additional funds through divestitures or equity or debt financings when needed, we may not have enough funding to execute our business strategy and maintain our ability to receive payment for some or all of the milestones set forth in the Ipsen sale agreement, the Servier agreement or the 14ner agreement.

Future indebtedness may limit cash flow available to invest in the ongoing needs of our business.

We have had in the past, and may in the future have, a significant amount of indebtedness. In July 2013, we issued $125.0 million aggregate principal amount of 4.50% convertible notes due 2020, or convertible notes. In December 2015, we issued $175.0 million aggregate principal amount of 11.50% senior secured notes due 2022, or 2022 notes. In July 2018, we entered into the loan agreement with Hercules, which provided for a term loan advance of $15.0 million. Although we used a portion of the proceeds from the Ipsen sale to fully extinguish the 2022 notes, we have extinguished all but $56,000 of the aggregate remaining principal amount of the convertible notes, and in April 2019, we repaid in full all principal, accrued and unpaid interest, fees, costs and expenses under the loan agreement, we could in the future incur additional indebtedness.

Substantial debt combined with our other financial obligations and contractual commitments could have significant adverse consequences, including:

- requiring us to dedicate a substantial portion of our resources to the payment of interest on, and principal of, our debt, which will reduce the amounts available to fund working capital, capital expenditures, product development efforts and other general corporate purposes;
- increasing our vulnerability to adverse changes in general economic, industry and market conditions;
- obligating us to restrictive covenants that may reduce our ability to take certain corporate actions or obtain further debt or equity financing;
- limiting our flexibility in planning for, or reacting to, changes in our business and the industry in which we compete; and
- placing us at a competitive disadvantage compared to our competitors that have less debt or better debt servicing options.

To the extent we seek funds from external sources in the future, such funds may not be available on acceptable terms, if at all. In addition, a failure to comply with the covenants under any future debt instruments could result in an event of default under those instruments, and such debt instruments could require covenants and pledges of our assets as collateral which could limit our ability to obtain other debt financing.

The comprehensive tax reform bill passed in 2017 could adversely affect our business and financial condition.

On December 22, 2017, President Trump signed into law new legislation that significantly revised the Internal Revenue Code of 1986, as amended. The newly enacted federal income tax law, among other things, contains significant changes to corporate taxation, including reduction of the corporate tax rate from a top marginal rate of 35% to a flat rate of 21%, limitation of the tax deduction for net interest expense to 30% of adjusted earnings (except for certain small businesses), limitation of the deduction for net operating losses to 80% of current year taxable income and elimination of net operating loss carrybacks, in each case, for losses arising in taxable years beginning after December 31, 2017 (though any such net operating losses may be carried forward indefinitely), one time taxation of offshore earnings at reduced rates regardless of whether they are repatriated, elimination of U.S. tax on foreign earnings (subject to certain important exceptions), immediate deductions for certain new investments instead of deductions for depreciation expense over time, and modifying or repealing many business deductions and credits. Notwithstanding the reduction in the corporate income tax rate, the overall impact of the new federal tax law remains uncertain and our business and financial condition could be adversely affected. In addition, it remains uncertain how various states will respond to the newly enacted federal tax law. The impact of this tax reform on holders of our common stock is also uncertain and could be adverse. We urge our stockholders to consult with their legal and tax advisors with respect to this legislation and the potential tax consequences of investing in or holding our common stock.

We might not be able to utilize our net operating loss carryforwards and research and development tax credit carryforwards.

As of December 31, 2018, we had federal net operating loss carryforwards of $179.7 million, which begin to expire in 2034, and state net operating loss carryforwards of $263.9 million, which begin to expire in 2031. As of December 31, 2018, we also had federal research and development tax credit carryforwards of $28.8 million and state research and development tax credit carryforwards $18.9 million, which begin to expire in 2022 and 2025, respectively. These net operating loss and tax credit carryforwards could expire unused or could be unavailable to offset our future income tax liabilities. Under the newly enacted federal income tax law, federal net operating losses incurred in 2018 and in future years may be carried forward indefinitely, but the deductibility of such federal net operating losses is limited. It is uncertain how various states will respond to the newly enacted federal tax law. If our ability to use our historical net operating loss and tax credit carryforwards is materially limited, it would harm our future operating results by effectively increasing our future tax obligations.

Our investments are subject to risks that could result in losses.

We have invested and plan to continue to invest our cash in a variety of financial instruments, principally securities issued by the U.S. government and its agencies, investment grade corporate bonds, including commercial paper, and money market instruments. All of these investments are subject to credit, liquidity, market and interest rate risk. Such risks, including the failure or severe financial distress of the financial institutions that hold our cash, cash equivalents and investments, may result in a loss of liquidity, impairment to our investments, realization of substantial future losses, or a complete loss of the investments in the long-term, which may have a material adverse effect on our business, results of operations, liquidity and financial condition. In order to manage the risk to our investments, we maintain an investment policy that, among other things, limits the amount that we may invest in any one issue or any single issuer and requires us to only invest in high credit quality securities, but there can be no guarantee that our investments will not result in losses.

Risks Related to the Development and Commercialization of Our Product Candidates

Although we have in the past depended heavily on the success of our product candidates, we do not have any product candidates currently in active development. Future clinical trials of our product candidates, if any, may not be successful. If we are unable to successfully develop or commercialize our product candidates, or experience significant delays in doing so, our business will be materially harmed.

Although we have invested a significant portion of our efforts and financial resources in the development of our product candidates for the treatment of various types of cancer, we are no longer actively developing any of our product candidates. Our ability to generate meaningful product revenues will depend heavily on the successful development of our product candidates, if pursued. To the extent that we pursue development in the future of any of our product candidates, success will depend on several factors, including the following:

- successful enrollment in, and 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 diagnostics;
- establishing manufacturing capabilities, which we would anticipate doing primarily through arrangements with third-party manufacturers;
- launching commercial sales of any approved products, whether alone or in collaboration with others;
- acceptance of any approved products by patients, the medical community and third-party payors;
- effectively competing with other therapies;
- a continued acceptable safety profile of any products following approval; and
- qualifying for, maintaining, enforcing and defending intellectual property rights and claims.

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

For example, on April 4, 2019, we announced that we were discontinuing development of MM-310 as a result of a comprehensive review of available safety data from our Phase 1 clinical trial of MM-310 in patients with solid tumors. Based on emerging data since the amendment of the clinical protocol in late 2018, we concluded that the trial would not be able to reach an optimal therapeutic index for MM-310.

Also, in November 2018, we announced that we were discontinuing development of all ongoing MM-121 programs based on the results of the interim analysis of the SHERLOC clinical trial that were announced on October 19, 2018, including terminating the SHERBOC clinical trial. The decision to terminate the SHERLOC clinical trial was made based on an interim analysis triggered by the occurrence of 75% of events required for trial completion, which demonstrated that the addition of MM-121 to docetaxel did not improve progression free survival over docetaxel alone in this patient population.

In addition, in September 2018, we announced top-line results from the CARRIE clinical trial, showing that the trial did not meet its primary or secondary efficacy endpoints in patients who received MM-141 in combination with nab-paclitaxel and gemcitabine, compared to nab-paclitaxel and gemcitabine alone. These results were consistent in all subgroups analyzed. Based on these results, we are not devoting additional resources to and have ceased all of our development activities for MM-141.

To the extent that we conduct clinical trials of our product candidates in the future and such trials 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.

We may never receive approval to commercialize our product candidates in the United States or other jurisdictions. 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. To the extent that we conduct clinical trials of our product candidates, a failure of one or more of such trials could 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 successful interim results of a clinical trial do not necessarily predict successful final results.

We may experience numerous unexpected 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 insufficient or 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 of a lack of clinical response or 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, companion diagnostics or other materials necessary to conduct clinical trials of our product candidates may be insufficient or inadequate or prohibitively expensive; 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, on November 7, 2018, we announced an amendment to our Phase 1 clinical trial of MM-310 to extend the dosing interval of MM-310 from every three weeks to every four weeks as a result of emerging cumulative grade 3 peripheral neuropathy following multiple cycles of treatment observed in three patients. On April 4, 2019, we announced that we were discontinuing development of MM-310 as a result of a comprehensive review of available safety data from the Phase 1 clinical trial. Based on emerging data since the amendment of the clinical protocol in late 2018, we concluded that the trial would not be able to reach an optimal therapeutic index for MM-310.

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In addition, in September 2018, we announced top-line results from the CARRIE clinical trial, showing that the trial did not meet its primary or secondary efficacy endpoints in patients who received MM-141 in combination with nab-paclitaxel and gemcitabine, compared to nab-paclitaxel and gemcitabine alone. Based on these results, we are not devoting additional resources to and have ceased all of our development activities for MM-141.

Preclinical and clinical data may not be predictive of the success of later clinical trials, and are often susceptible to varying interpretations and analyses. 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.

If we are required to conduct additional clinical trials or other testing of our product candidates beyond those that we 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;
- be subject to restrictions on how the product is distributed or used; or
- be unable to obtain reimbursement for use of the product.

Delays in testing or approvals may result in increases to our product development costs. 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 undesirable side effects are identified during the development of our product candidates or following their approval and commercialization, we may need to modify or abandon our development or marketing of such product or product candidate.

Although we are not actively developing any of our product candidates, to the extent that we do decide to undertake development, the 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, and it is impossible to ensure that safety or efficacy issues will not arise following 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 or investigational therapies, our product candidates may exacerbate adverse events associated with the other therapy. If our products or product candidates, either alone or in combination with other therapies, result in undesirable side effects or have characteristics that are unexpected, we may need to modify or abandon any such future development or marketing.

For example, on November 7, 2018, we announced an amendment to our Phase 1 clinical trial of MM-310 to extend the dosing interval of MM-310 from every three weeks to every four weeks as a result of emerging cumulative grade 3 peripheral neuropathy following multiple cycles of treatment observed in three patients. On April 4, 2019, we announced that we were discontinuing development of MM-310 as a result of a comprehensive review of available safety data from the Phase 1 clinical trial. Based on emerging data since the amendment of the clinical protocol in late 2018, we concluded that the trial would not be able to reach an optimal therapeutic index for MM-310.

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 an even greater risk related to the commercial sale of any products that we may develop. If we cannot successfully defend ourselves against claims that any of our product candidates caused injuries, we will incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

- decreased demand for the products or product candidates 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 or every liability that may arise.

Risks Related to Our Intellectual Property

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

We are a party to intellectual property license agreements with third parties and may 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 product development strategy 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.

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 that protect our technology or products or that 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, the first to file a patent application is entitled to the patent. Under the America Invents Act enacted in 2011, the United States moved to this first to file system in 2013 from the previous system under which the first to make the claimed invention was entitled to the patent. We may become involved in opposition, interference or derivation 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 initiate infringement lawsuits, 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 products and product candidates and use our proprietary technologies without infringing the enforceable 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 or derivation 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, prevent us from divesting certain assets 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.

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

Many of our former 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.

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 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 or other 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 and operate our business.

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 have entered into confidentiality and invention or patent assignment agreements with our employees and consultants. Any of these parties may breach these 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 Data Protection and Cybersecurity

Our failure to comply with data protection laws and regulations could lead to government enforcement actions, private litigation and/or adverse publicity and could negatively affect our operating results and business.

We are subject to data protection laws and regulations that address privacy and data security. The legislative and regulatory landscape for data protection continues to evolve, and in recent years there has been an increasing focus on privacy and data security issues. In the United States, numerous federal and state laws and regulations, including state data breach notification laws, state health information privacy laws and federal and state consumer protection laws govern the collection, use, disclosure and protection of health-related and other personal information. Failure to comply with data protection laws and regulations could result in government enforcement actions, which could include civil or criminal penalties, private litigation and/or adverse publicity and could negatively affect our operating results and business. In addition, we may obtain health information from third parties (e.g., healthcare providers who prescribe our products) that are subject to privacy and security requirements under the Health Insurance Portability and Accountability Act of 1996, as amended by the Health Information Technology for Economic and Clinical Health Act. We could be subject to criminal penalties if we knowingly obtain or disclose individually identifiable health information in a manner that is not authorized or permitted.

The collection and use of personal health data in the European Union is governed by the provisions of the General Data Protection Regulation, or GDPR, which came into effect in May 2018. This regulation imposes several requirements relating to the consent of the individuals to whom the personal data relates, the information provided to the individuals, notification of data processing obligations to the competent national data protection authorities and the security and confidentiality of the personal data. The GDPR also imposes strict rules on the transfer of personal data out of the European Union to the United States. Failure to comply with the requirements of the GDPR and the related national data protection laws of the European Union Member States may result in significant fines and other administrative penalties.

Significant disruptions of information technology systems or security breaches could adversely affect our business.

We are increasingly dependent upon information technology systems, infrastructure and data to operate our business. In the ordinary course of business, we collect, store and transmit large amounts of confidential information (including, among other things, trade secrets or other intellectual property, proprietary business information and personal information). It is critical that we do so in a secure manner to maintain the confidentiality and integrity of such confidential information. We also have outsourced elements of our operations to third parties, and as a result we manage a number of third-party vendors who may or could have access to our confidential information. The size and complexity of our information technology systems, and those of third-party vendors with whom we contract, and the large amounts of confidential information stored on those systems, make such systems vulnerable to service interruptions or to security breaches from inadvertent or intentional actions by our employees, consultants, third-party vendors, and/or business partners, or from cyber-attacks by malicious third parties. Cyber-attacks are increasing in their frequency, sophistication and intensity, and have become increasingly difficult to detect. Cyber-attacks could include the deployment of harmful malware, ransomware, denial-of-service attacks, social engineering and other means to affect service reliability and threaten the confidentiality, integrity and availability of information. Cyber-attacks could also include phishing attempts or e-mail fraud to cause payments or information to be transmitted to an unintended recipient.

Significant disruptions of our information technology systems, or those of our third-party vendors, or security breaches could adversely affect our business operations and/or result in the loss, misappropriation and/or unauthorized access, use or disclosure of, or the prevention of access to, confidential information, including, among other things, trade secrets or other intellectual property, proprietary business information and personal information, and could result in financial, legal, business and reputational harm to us. For example, any such event that leads to unauthorized access, use or disclosure of personal information, including personal information regarding our patients or employees, could harm our reputation, require us to comply with federal and/or state breach notification laws and foreign law equivalents, and otherwise subject us to liability under laws and regulations that protect the privacy and security of personal information. Security breaches and other inappropriate access can be difficult to detect, and any delay in identifying them may lead to increased harm of the type described above. While we have implemented security measures to protect our information technology systems and infrastructure, there can be no assurance that such measures will prevent service interruptions or security breaches that could adversely affect our business.

Risks Related to Personal Matters

Our future success depends on our ability to retain qualified personnel.

We do not have any employees and instead use a limited number of external consultants for the operation of our company, any of whom may terminate their consultancy with us at any time. We may not be able to attract and retain consultants on acceptable terms given the competition among numerous pharmaceutical and biotechnology companies for similar personnel. 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 do not maintain "key person" insurance.

Our corporate restructuring and the associated headcount reduction may not result in anticipated savings, could result in total costs and expenses that are greater than expected and could disrupt our business.

We announced on November 7, 2018, April 4, 2019 and May 30, 2019 a series of reductions in headcount as part of a corporate restructuring as we close out clinical and development activities. We may not realize, in full or in part, the anticipated benefits, savings and improvements in our cost structure from our restructuring efforts due to unforeseen difficulties, delays or unexpected costs. If we are unable to realize the expected operational efficiencies and cost savings from the restructuring, our operating results and financial condition would be adversely affected. Furthermore, our restructuring plan may be disruptive to our operations. For example, our headcount reductions could yield unanticipated consequences, such as increase difficulties in implementing our business strategy.

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

As part of our business strategy, we may enter into business combinations, acquisitions or divestitures. Although we consummated the Ipsen sale in April 2017 and the sale to 14ner of MM-121 and MM-111 in July 2019, we have limited experience in making acquisitions and divestitures. In addition, acquisitions and divestitures are typically accompanied by a number of risks, including:

- the difficulty of integrating or separating the operations and personnel of the acquired companies or divested product;
- 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, acquisition or divestiture;
- the maintenance of acceptable standards, controls, procedures and policies; and
- the impairment of relationships with personnel as a result of any integration or separation of management and other personnel.

If we are not successful in completing acquisitions or divestitures 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 or divestitures. In addition, with future acquisitions, if pursued, we could use substantial portions of our available cash as all or a portion of the purchase price or could issue additional securities as consideration for these acquisitions, which could cause our stockholders to suffer significant dilution.

Our corporate compliance efforts cannot guarantee that we are in compliance with all potentially applicable regulations.

We are subject to extensive regulation by federal, state and other authorities within the United States and numerous entities outside of the United States. We cannot provide any assurance that governmental authorities will find that our business practices comply with current or future administrative or judicial interpretations of potentially applicable laws and regulations. If we fail to comply with any of these laws and regulations, we could be subject to a range of regulatory actions, including suspension or termination of clinical trials, the failure to approve a product candidate, restrictions on our products or manufacturing processes, withdrawal of products from the market, significant fines, disqualification or debarment from participation in federally-funded healthcare programs or other sanctions or litigation, any of which events may have a significant adverse impact on our business.

Risks Related to Our Common Stock

Our directors and principal stockholders maintain the ability to significantly influence all matters submitted to stockholders for approval.

Our directors and stockholders who own more than 5% of our outstanding common stock, in the aggregate, beneficially own a large portion of our capital stock. As a result, if these stockholders were to choose to act together, they would be able to significantly influence 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, would significantly influence 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 discourage, 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 may discourage, delay or prevent a merger, acquisition or other change in control of us that stockholders may consider favorable, including transactions in which our stockholders might otherwise receive a premium for their 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:

- allow the authorized number of our directors to be changed only by resolution of our board of directors;
- 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.

Our stock price has been and may in the future be volatile, which could cause holders of our common stock to incur substantial losses.

Our stock price has been and in the future may be subject to substantial price volatility. 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, our stockholders could incur substantial losses. The market price for our common stock may be influenced by many factors, including:

- the timing and amount of potential milestone payments that we may receive from Ipsen, Servier and/or 14ner;
- 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;
- activism by any single large stockholder or combination of stockholders;
- general economic, industry and market conditions; and
- the other factors described in this "Risk Factors" section.

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

We have not historically declared or paid regular cash dividends on our common stock. Although our board of directors declared special cash dividends of $20.0 million and $140.0 million, which were payable on September 5, 2019 and May 26, 2017, respectively, to stockholders of record as of the close of business on August 28, 2019 and May 17, 2017, respectively, we do not currently intend to pay any regular cash dividends in the foreseeable future. In addition, the terms of any future debt agreements may in the future preclude us from paying dividends. As a result, capital appreciation, if any, of our common stock will be the sole source of gain for holders of our common stock for the foreseeable future.

Future sales of shares of our common stock, including by us or our directors, or shares issued upon the exercise of currently outstanding options could cause the market price of our common stock to drop significantly, even if our business is doing well.

A substantial portion of our outstanding common stock can be traded without restriction at any time. In addition, a portion of our outstanding common stock is currently restricted as a result of federal securities laws, but can be sold at any time subject to applicable volume limitations. As such, 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, by us or others, could reduce the market price of our common stock. In addition, we have a significant number of shares that are subject to outstanding options. The exercise of these options and the subsequent sale of the underlying common stock could cause a further decline in our stock price. For instance, in April 2016, we issued an aggregate of 1,236,766 shares of our common stock to certain holders of our convertible notes who had agreed to convert an aggregate of $64.2 million of convertible notes. Any such sales also might make it difficult for us to sell equity securities in the future at a time and at a price that we deem appropriate. We cannot predict the size of future issuances or the effect, if any, that any future issuances may have on the market price for our common stock.

Furthermore, on December 15, 2017, we filed a registration statement on Form S-3 with the SEC to allow the issuance of our securities from time to time in one or more offerings of up to $150,000,000 in aggregate dollar amount. This registration statement was declared effective by the SEC on January 5, 2018. Any sale of additional shares of our common stock or other securities could reduce the market price of our common stock.

Item 5. Exhibits.

Exhibit Number	Description of Exhibit
10.1*	Cooperation Agreement, dated as of September 18, 2019, by and among the Registrant, Newtyn Management, LLC, Newtyn Partners, LP, Newtyn TE Partners, LP, Noah G. Levy, Newtyn Capital Partners, LP, Ledo Capital, LLC, Western Standard, LLC, Western Standard Partners, LP, Western Standard Partners QP, LP and Eric D. Andersen (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on September 20, 2019)
31.1*	Certification of Principal Executive Officer pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2*	Certification of Principal Financial Officer pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1+	Certification of Principal Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2+	Certification of Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.INS*	XBRL Instance Document
101.SCH*	XBRL Taxonomy Extension Schema Document
101.CAL*	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF*	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB*	XBRL Taxonomy Extension Label Linkbase Database
101.PRE*	XBRL Taxonomy Extension Presentation Linkbase Document

* Filed herewith.

\+ Furnished herewith.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

MERRIMACK PHARMACEUTICALS, INC.

Date: November 12, 2019

By: /s/ Gary L. Crocker
Gary L. Crocker
President
(Principal Executive and Financial Officer)

Exhibit 31.1

CERTIFICATIONS

I, Gary L. Crocker, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Merrimack Pharmaceuticals, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 12, 2019

/s/ Gary L. Crocker
Gary L. Crocker
President
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATIONS

I, Gary L. Crocker, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Merrimack Pharmaceuticals, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 12, 2019

/s/ Gary L. Crocker
Gary L. Crocker
President
(Principal Financial Officer)

Exhibit 32.1

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350,

AS ADOPTED PURSUANT TO

SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report on Form 10-Q of Merrimack Pharmaceuticals, Inc. (the "Company") for the period ended September 30, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, Gary L. Crocker, President of the Company, hereby certifies, pursuant to 18 U.S.C. Section 1350, that to his knowledge:

(1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: November 12, 2019

/s/ Gary L. Crocker
Gary L. Crocker
President
(Principal Executive Officer)

Exhibit 32.2

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350,

AS ADOPTED PURSUANT TO

SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report on Form 10-Q of Merrimack Pharmaceuticals, Inc. (the "Company") for the period ended September 30, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, Gary L. Crocker, President of the Company, hereby certifies, pursuant to 18 U.S.C. Section 1350, that to her knowledge:

(1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: November 12, 2019

/s/ Gary L. Crocker
Gary L. Crocker
President
(Principal Financial Officer)