

September 15, 2011

VIA EDGAR SUBMISSION

Securities and Exchange Commission
 Division of Corporation Finance
 100 F Street, NE
 Washington, DC 20549

Attention: Karen Ubell, Esq.

Re: Merrimack Pharmaceuticals, Inc.
 Registration Statement on Form S-1
 File Number 333-175427

Ladies and Gentlemen:

On behalf of Merrimack Pharmaceuticals, Inc. (the "Company"), submitted herewith for filing is Amendment No. 2 ("Amendment No. 2") to the Registration Statement referenced above (the "Registration Statement").

Amendment No. 2 is being filed in response to comments contained in the letter dated August 30, 2011 from Jeffrey Riedler of the Staff (the "Staff") of the Securities and Exchange Commission to Robert J. Mulroy, the Company's President and Chief Executive Officer. The responses set forth below are based upon information provided to Wilmer Cutler Pickering Hale and Dorr LLP by the Company. The responses are keyed to the numbering of the comments and the headings used in the Staff's letter. Where appropriate, the Company has responded to the Staff's comments by making changes to the disclosure in the Registration Statement as set forth in Amendment No. 2.

On behalf of the Company, we advise you as follows:

Management's discussion and analysis of financial condition and results of operations**Critical accounting policies and significant judgments and estimates****Stock Based Compensation, page 69**

1. *Please refer to your response to our prior comment seven. Please note we may have additional comments once the IPO price is known.*

Response: The Company acknowledges the Staff's comment. The Company has not included the actual price range in Amendment No. 2 because it has not yet been determined and depends on factors outside the Company's control. The Company supplementally advises the Staff that the Company continues to anticipate that the price range for this offering will be within

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the range of \$7.00 to \$10.00 per share (before giving effect to a reverse stock split that the Company may implement prior to the effectiveness of the Registration Statement). Once the actual price range for this offering has been determined, the Company will reflect in a subsequent amendment to the Registration Statement an additional list of significant factors contributing to any difference between the most recent common stock valuation and the midpoint of the estimated price range for this offering.

Notes to Consolidated Financial Statements, page F-7**4. License and collaboration agreements****PharmaEngine, Inc., page F-18**

2. *Please tell us and disclose how you concluded that PharmaEngine is a variable interest entity, and why you concluded that you are not the primary beneficiary.*

Response: In response to the Staff's comment, the Company has revised the disclosure on page F-18 of Amendment No. 2.

In September 2005, Hermes BioSciences, Inc. ("Hermes"), which the Company acquired in October 2009, entered into a license agreement with PharmaEngine, Inc. ("PharmaEngine") under which PharmaEngine received an exclusive license to develop and commercialize MM-398 in Europe and certain countries in Asia. On May 5, 2011, the Company entered into an assignment, sublicense and collaboration agreement (the "Agreement") with PharmaEngine under which, among other things, the Company reacquired rights to MM-398 in Europe and certain countries in Asia. Company management determined that the technology license included in the Agreement represented a variable interest in PharmaEngine under FASB Codification ASC 810. Next, based on confidential financial information related to PharmaEngine's capitalization that the Company was privy to, management determined that PharmaEngine's investment at risk was insufficient to finance its activities (*i.e.*, that PharmaEngine was thinly capitalized) and, thus, that PharmaEngine met the definition of a variable interest entity under ASC 810. Finally, Company management determined that the Company did not meet the power criterion of ASC 810 in that the Company does not have the power to control PharmaEngine's activities and, thus, that the Company was not the primary beneficiary. As part of this evaluation, the Company noted the following:

- the Company holds no equity interest or voting power in PharmaEngine;

- the Company cannot control the day to day activities of PharmaEngine;
- the Company cannot dictate with whom PharmaEngine may collaborate; and
- under the Agreement, the Company cannot compel PharmaEngine to participate in the development or commercialization of MM-398 as such participation is at the option of PharmaEngine.

13. Series F amount, page F-28

3. *It appears that the stockholders paid \$5.51 per share for Series F preferred stock in 2007 and 2008. It also appears that the conversion rate is a one for one rate to common stock. Please tell us why the fair value of your common stock had decreased to \$2.12 in October 2009 as discussed on page 72 in light of the Series F issuances in 2007 and 2008. Also, please expand the tables on pages F-32 and 70 to include option grants in 2008 and 2009.*

Response: The Company supplementally advises the Staff of the following with respect to the decrease in the per share fair value of the Company's common stock to \$2.12 in October 2009:

- During 2007 and 2008, the Company sold shares of its Series F convertible preferred stock for \$5.10 per share. Each share of Series F convertible preferred stock is convertible into one share of the Company's common stock, subject to adjustment as provided in the Company's Certificate of Incorporation. In connection with the Series F financing, the Company prepared a contemporaneous valuation report on the fair value of its common stock that indicated a per share value of \$3.32 as of December 31, 2007.
- In June 2008, the Company's lead product candidate at the time, MM-093, failed to achieve its primary efficacy endpoints in a Phase 2 clinical trial. In addition, in the late summer and early fall of 2008, there was a significant deterioration in the global financial markets. Each of these events had a negative impact on the fair value of the Company's common stock. A contemporaneous valuation report on the fair value of the Company's common stock prepared by the Company confirmed the negative impact and indicated a per share value of \$1.81 as of August 1, 2008.
- In September 2009, the Company entered into a license and collaboration agreement with Sanofi. In addition, in October 2009, the Company acquired Hermes BioSciences, Inc. Each of these events had a positive impact on the fair value of the Company's common

stock. A contemporaneous valuation report on the fair value of the Company's common stock prepared by the Company confirmed the positive impact and indicated a per share value of \$2.12 as of October 6, 2009.

In addition, in response to the Staff's comment, the Company has expanded the option tables on pages 70 and F-32 of Amendment No. 2 to include option grants in 2008 and 2009.

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If you have any further questions or comments, or if you require any additional information, please contact the undersigned by telephone at (212) 937-7206 or facsimile at (212) 230-8888. Thank you for your assistance.

Very truly yours,

/s/ Brian A. Johnson

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