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

DIVISION OF
CORPORATION FINANCE

August 3, 2011

Via E-mail
Robert J. Mulroy
President and Chief Executive Officer
Merrimack Pharmaceuticals, Inc.
One Kendall Square, Suite B7201
Cambridge, MA 02139

Re: Merrimack Pharmaceuticals, Inc.
Registration Statement on Form S-1
Filed July 8, 2011
File No. 175427

Dear Mr. Mulroy:

We have reviewed your registration statement and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by amending your registration statement and providing the requested information. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your registration statement and the information you provide in response to these comments, we may have additional comments.

General

1. Please file all exhibits as soon as practicable. We may have further comments upon examination of these exhibits.

2. Comments on your confidential treatment request will be delivered under separate cover.

3. Please note that when you file a pre-effective amendment containing pricing-related information, we may have additional comments. As you are likely aware, you must file this amendment prior to circulating the prospectus. Please note that when you file a pre-effective amendment that includes your price range, it must be bone fide. We interpret this to mean that your range may not exceed $2 if you price below $20 and 10% if you price above $20.

4. Please provide us proofs of all graphic, visual or photographic information you will provide in the printed prospectus prior to its use, for example in a preliminary prospectus. Please note that we may have comments regarding this material.

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 57

Strategic Partnerships, Licenses and Collaborations, page 58

5. In your discussion of the July 2009 license agreement with GTC Biotherapeutics on page 59, please disclose the aggregate potential development and sales milestones you are eligible to receive, as well as the range of royalty payments to which you are entitled for net sales of MM-093.

Critical accounting policies and significant judgments and estimates
Accrued Expenses, page 66

6. Please revise your disclosure to clarify whether changes in estimates have been material for each period presented, quantifying any material changes in estimate.

Stock Based Compensation, page 67

7. We have reviewed your disclosures and have the following comments:

    - Once you can reasonably estimate the IPO price, qualitatively and quantitatively discuss each significant factor contributing to the difference between each valuation and the estimated IPO price. See paragraph 182(b) of the AICPA Practice Aid.
    - Please update your schedule of stock options granted to the date of your response to these comments. Include a similar table in the filing for any other equity issuances during the period.

Results of Operations
Comparison of the years ended December 31, 2009 and 2010
General and Administrative Expenses, page 79

8. Please tell us why you are classifying MM-121 consulting and legal expenses as general and administrative expenses for the periods presented in this filing.

Business, page 89

9. Please revise to provide an explanation of the following terms the first time you use them in the Business section and, if applicable, the prospectus summary:

    - high-throughput (page 89);
    - nanotherapeutic encapsulation (page 89);
    - monoclonal antibody (page 89);
    - cell surface receptor (page 89);
    - bispecific antibody (page 90);
    - oligoclonal therapeutic (page 90); and
    - kinase domain (page 93)

Network Biology, page 91

10. You disclose that Network Biology is a core element of your product development process and your strategy. Your disclosure, however, focuses on the potential benefits that Network Biology may yield in the product development process without fully or clearly describing the technology upon which Network Biology relies to realize such benefits. More concrete details are needed about the tools and processes you use to understand cell signaling networks and how network dysfunction leads to and perpetuates disease. Furthermore, you indicate that Network Biology has certain advantages over traditional research and development without describing either approach in such a way as to demonstrate this advantageous differentiation. You make a point of stating that you focus on analyzing cell signal transmission and communication rather than the traditional focus on characterizing the activity of individual molecular components, but investors may have difficulty understanding this distinction without an illustrative example.

    Accordingly, as it currently reads, your disclosure may leave a reader unable to fully understand the implementation and application of Network Biology in your business and evaluate the potential benefits you describe. Please revise to more clearly and prominently describe Network Biology and differentiate Network Biology from traditional research and development approaches. Please make any corresponding changes to your prospectus summary.

11. Please disclose any technology or databases upon which Network Biology relies. Your disclosure should indicate whether you have compiled such information or databases independently or identify their respective source.

Our Most Advanced Product Candidates, page 96

12. We note your disclosure on pages 35 in the risk factor titled “If we pursue development of companion diagnostics…” Please expand your disclosure generally and, as applicable, for each product candidate to disclose whether approval of a companion diagnostic may

be required for approval and subsequent commercialization of your therapeutic products. As applicable, please indicate whether you may rely upon any currently available diagnostics such that a therapeutic product may proceed despite a delay in or failure of production of a companion diagnostic.

Clinical Development of MM-398, page 101

13. Please expand your disclosure to indicate why you will be required to conduct all new clinical trials of MM-398 despite prior trials conducted by PharmaEngine.

Collaboration and License Agreements
Sanofi, page 126

14. We note your disclosure here and on page 58 that the escalating royalties begin in the "low double digits." Please revise your disclosure to indicate a range not to exceed ten percent.

University of California, page 130

15. With respect to each of the 2000 and 2005 agreements, please disclose the annual license maintenance fee.

Intellectual Property, page 132

16. For your each of the licensed patents in your portfolio that you discuss on page 133, please indicate from whom the patent is licensed.

Management, page 153

17. Please disclose Dr. Gay's principal employment from 2004 to 2008.

Severance and Change in Control Benefits, page 172

18. Your disclosure references a discussion of employment agreements and potential payments upon termination or change in control but discussion of such items has not been included. We note also that you have included placeholders for amended and restated employment agreements with each of your named executive officers. Please confirm that you will update your disclosure and file each agreement upon execution of such agreements.

Description of Capital Stock, page 196

19. We note that you will file by amendment as Exhibits 3.3 and 3.4 the Restated Certificate of Incorporation and Amendment and Restated Bylaws of the registrant, respectively.

Please provide us with copies of the form of Restated Certificate of Incorporation and Amendment and Restated Bylaws you intend to file for our examination with your next amendment.

Common Stock, page 197

20. In addition to the threshold for election of directors, please expand your disclosure to include the voting threshold for all matters that may be voted on by stockholders.

Notes to Consolidated Financial Statements, page F-7

4. License and collaboration agreements
Sanofi, page F-16

21. With respect to your agreement with Sanofi, please revise your disclosure here to include a description of your performance obligations under this agreement, including the joint committees and all deliverables. Clarify that you are recognizing revenue for this agreement over the period of all your performance obligations or explain to us why your accounting is appropriate.

6. Consolidated subsidiaries
Hermes BioSciences, Inc., page F-19

22. With respect to the in-process research and development acquired, please disclose the significant appraisal assumptions, such as:

- the period in which material net cash inflows from significant projects are expected to commence;
- material anticipated changes from historical pricing, margins and expense levels; and
- the risk adjusted discount rate applied to the project's cash flows.

14. Stock Warrants, page F-29

23. Please clarify how you determined that the common warrants should be classified as equity. In this regard, please tell us whether the warrants are subject to adjustment if you subsequently issue equity at a price lower than the exercise price of these warrants. If so, please explain to us why you have not reclassified these warrants to liabilities effective January 1, 2009 under FASB ASC 815-40-15 with transition guidance at FASB ASC 815-10-65-3.

24. Please clarify that the modification of the stock warrant resulted in additional compensation expense in accordance with ASC 718-20-35-3 or explain why not.

20. Subsequent events, page F-37

25. Please disclose the significant provisions of the Series G convertible preferred stock issued in April 2011. Please disclose any anticipated beneficial conversion feature and tell us how you determined the amount of any beneficial conversion feature.

26. Please disclose in MD&A the anticipated timing of the milestone payments associated with the PharmaEngine agreement.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Act of 1933 and all applicable Securities Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

Notwithstanding our comments, in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;

- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and

- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

You may contact Tabatha Akins, Staff Accountant, at (202) 551-3658 or Lisa Vanjoske, Accounting Reviewer, at (202) 551-3614 if you have questions regarding comments on the financial statements and related matters. Please contact Karen Ubell, Staff Attorney, at (202) 551-3873, Dan Greenspan, Branch Chief, at (202) 551-3623 or me at (202) 551-3715 with any other questions.

Sincerely,

/s/ Daniel Greenspan for

Jeffrey Riedler
Assistant Director