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

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**FORM 8-K**

**CURRENT REPORT**

**Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934**

Date of Report (Date of earliest event reported): **July 10, 2013**

**Merrimack Pharmaceuticals, Inc.**

(Exact Name of Registrant as Specified in its Charter)

**Delaware**  
(State or Other Jurisdiction  
of Incorporation)

**001-35409**  
(Commission  
File Number)

**04-3210530**  
(IRS Employer  
Identification No.)

**One Kendall Square, Suite B7201**  
**Cambridge, MA**  
(Address of Principal Executive Offices)

**02139**  
(Zip Code)

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

(Former Name or Former Address, if Changed Since Last Report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

- ☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
  - ☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
  - ☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
  - ☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))
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**Item 1.01. Entry into a Material Definitive Agreement.**

*Underwriting Agreements*

On July 11, 2013, Merrimack Pharmaceuticals, Inc. (the "Company") entered into an underwriting agreement (the "Equity Underwriting Agreement") with the underwriters listed therein (the "Equity Underwriters"), for which J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated are acting as representatives, to issue and sell to the Equity Underwriters 5,000,000 shares of the Company's common stock (the "Shares") in a public offering pursuant to a Registration Statement on Form S-3 (File No. 333-186369) (the "Registration Statement") and a related prospectus filed with the Securities and Exchange Commission (the "SEC"), at a public offering price of \$5.00 per share (the "Common Stock Offering"). The Company also granted the Equity Underwriters an option, exercisable for 30 days, to purchase up to an additional 750,000 shares of its common stock at the public offering price less underwriting discounts and commissions. The Company estimates that the net proceeds from the Common Stock Offering, after deducting underwriting discounts and commissions and estimated offering expenses payable by the Company, will be approximately \$23.3 million (or approximately \$26.8 million if the Equity Underwriters exercise in full their option to purchase additional shares).

On July 11, 2013, the Company also entered into an underwriting agreement (the "Notes Underwriting Agreement") with the underwriters listed therein (the "Note Underwriters"), for which J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated are acting as representatives, to issue and sell to the Note Underwriters \$125,000,000 in aggregate principal amount of 4.50% Convertible Senior Notes due 2020 (the "Notes") in a public offering pursuant to the Registration Statement and a related prospectus filed with the SEC (the "Convertible Notes Offering"). The Company also granted the Note Underwriters an option, exercisable for 30 days, to purchase up to an additional \$18,750,000 in aggregate principal amount of the Notes at the public offering price less underwriting discounts and commissions. The Notes are to be issued pursuant to a base indenture, as supplemented by a supplemental indenture (as so supplemented, the "Indenture"), in each case, to be entered into between the Company and Wells Fargo Bank, National Association, as trustee. The Company estimates that the net proceeds from the Convertible Notes Offering, after deducting underwriting discounts and commissions and estimated offering expenses payable by the Company, will be approximately \$120.6 million (or approximately \$138.8 million if the Note Underwriters exercise in full their option to purchase additional Notes).

Each of the Equity Underwriting Agreement and the Notes Underwriting Agreement contains customary representations, warranties and covenants of the Company, conditions to closing, indemnification obligations of the Company and the Equity Underwriters and the Notes Underwriters, respectively, and termination and other customary provisions.

The above descriptions of the Equity Underwriting Agreement and Notes Underwriting Agreement are qualified in their entirety by reference to the Equity Underwriting Agreement and Notes Underwriting Agreement, copies of which are filed as Exhibit 1.1 and Exhibit 1.2, respectively, to this Current Report on Form 8-K and are incorporated herein by reference.

*Amendment to Hercules Loan and Security Agreement*

On July 10, 2013, in connection with the Convertible Notes Offering, the Company and Hercules Technology Growth Capital, Inc. (“Hercules”) entered into an amendment, consent and waiver to the Loan and Security Agreement dated as of November 8, 2012 by and between the Company and Hercules (the “Loan and Security Agreement”) that permits the offering and issuance of the Notes (the “Hercules Amendment”). Pursuant to the Hercules Amendment:

- Hercules consented to the Convertible Notes Offering;
- the Company and Hercules acknowledged that certain rights granted to Hercules in the Loan and Security Agreement to participate in certain private financing transactions undertaken by the Company do not apply to the Convertible Notes Offering;
- the Company agreed not to amend or modify the terms of the Notes or the Indenture in a manner adverse to Hercules;
- the Company agreed not to make any cash payments under the terms of the Indenture, other than interest payments (which are permitted so long as no event of default has occurred and is continuing under the Loan and Security Agreement) and payment of cash in lieu of fractional shares upon conversion of the Notes into shares of the Company’s common stock, without the consent of Hercules; and
- the Company and Hercules agreed to certain other ministerial amendments to permit the offering and issuance of the notes under the terms of the Loan and Security Agreement and related matters.

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The above description of the Hercules Amendment is qualified in its entirety by reference to the Hercules Amendment, a copy of which is filed as Exhibit 10.1 to this Current Report on Form 8-K and is incorporated herein by reference.

**Item 8.01. Other Events.**

On July 11, 2013, the Company announced the pricing of the Shares sold in the Common Stock Offering and the Notes sold in the Convertible Notes Offering. The full text of the press release issued in connection with the announcement is attached to this Current Report on Form 8-K as Exhibit 99.1 and is incorporated herein by reference.

Wilmer Cutler Pickering Hale and Dorr LLP, counsel to the Company, has issued a legal opinion with respect to the Shares sold in the Common Stock Offering and a legal opinion with respect to the Notes sold in the Convertible Notes Offering and the shares of the Company’s common stock issuable upon conversion of the Notes. Copies of such opinions, including the consents included therein, are attached to this Current Report on Form 8-K as Exhibit 5.1 and Exhibit 5.2, respectively.

**Item 9.01. Financial Statements and Exhibits.**

(d) Exhibits.

See Exhibit Index attached hereto.

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**SIGNATURE**

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 hereunto duly authorized.

MERRIMACK PHARMACEUTICALS, INC.

Date: July 12, 2013

By: /s/ Jeffrey A. Munsie  
Jeffrey A. Munsie  
Vice President and General Counsel

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**EXHIBIT INDEX**

<u>Exhibit No.</u>	<u>Description</u>
1.1	Equity Underwriting Agreement, dated July 11, 2013, by and among Merrimack Pharmaceuticals, Inc. and J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated, as representatives of the several Underwriters

1.2	Notes Underwriting Agreement, dated July 11, 2013, by and among Merrimack Pharmaceuticals, Inc. and J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated, as representatives of the several Underwriters
5.1	Opinion of Wilmer Cutler Pickering Hale & Dorr LLP with respect to the Shares sold in the Common Stock Offering
5.2	Opinion of Wilmer Cutler Pickering Hale & Dorr LLP with respect to the Notes sold in the Convertible Notes Offering
10.1	Amendment, Consent and Waiver dated July 10, 2013 to the Loan and Security Agreement, dated as of November 8, 2012, by and between Merrimack Pharmaceuticals, Inc. and Hercules Technology Growth Capital, Inc.
23.1	Consent of Wilmer Cutler Pickering Hale & Dorr LLP (included in Exhibit 5.1)
23.2	Consent of Wilmer Cutler Pickering Hale & Dorr LLP (included in Exhibit 5.2)
99.1	Press release issued by Merrimack Pharmaceuticals, Inc. on July 11, 2013

J.P. MORGAN SECURITIES LLC  
MERRILL LYNCH, PIERCE, FENNER & SMITH INCORPORATED

MERRIMACK PHARMACEUTICALS, INC.

5,000,000 Shares of Common Stock, par value \$0.01 per share

Underwriting Agreement

July 11, 2013

J.P. Morgan Securities LLC  
Merrill Lynch, Pierce, Fenner & Smith  
Incorporated  
As Representatives of the  
several Underwriters listed  
in Schedule 1 hereto

c/o J.P. Morgan Securities LLC  
383 Madison Avenue  
New York, New York 10179

c/o Merrill Lynch, Pierce, Fenner & Smith  
Incorporated  
One Bryant Park  
New York, New York 10036

Ladies and Gentlemen:

Merrimack Pharmaceuticals, Inc., a Delaware corporation (the “Company”), proposes to issue and sell to the several Underwriters listed in Schedule 1 hereto (the “Underwriters”), for whom you are acting as representatives (the “Representatives”), an aggregate of 5,000,000 shares of Common Stock, par value \$0.01 per share, of the Company (the “Underwritten Shares”) and, at the option of the Underwriters, up to an additional 750,000 shares of Common Stock, par value \$0.01 per share, of the Company (the “Option Shares”). The Underwritten Shares and the Option Shares are herein referred to as the “Shares”. The shares of Common Stock, par value \$0.01 per share, of the Company to be outstanding after giving effect to the sale of the Shares are referred to herein as the “Stock”.

Concurrently with the issuance of the Shares, the Company is offering, in an offering registered under the Securities Act (as defined below), by means of a prospectus supplement and related prospectus, and proposes to issue and sell to the several underwriters named in the underwriting agreement for such offering (the “Convertible Underwriters”), \$125,000,000 aggregate principal amount of its 4.50% Convertible Senior Notes due 2020 (the “Firm Notes”) to be issued pursuant to the provisions of an Indenture to be dated as of July 17, 2013 (the “Base Indenture”) between the Company and Wells Fargo Bank, National Association, as trustee (the “Trustee”), as supplemented by a First Supplemental Indenture to be dated as of the Closing Date (as defined herein) between the Company and the Trustee (as so supplemented, the “Indenture”). The Company also proposes to issue and sell to the several Convertible Underwriters

not more than an additional \$18,750,000 aggregate principal amount of its 4.50% Convertible Senior Notes due 2020 (the “Additional Notes”), if, and to the extent that, the representatives of the Convertible Underwriters shall have determined to exercise, on behalf of the Convertible Underwriters, the right to purchase Additional Notes pursuant to the option granted to the Convertible Underwriters. The Firm Notes and the Additional Notes are hereinafter collectively referred to as the “Notes.” The Notes will be convertible into cash, shares of Common Stock or a combination of cash and shares of Common Stock, at the option of the Company, subject to certain limitations as set forth in the Indenture.

The Company hereby confirms its agreement with the several Underwriters concerning the purchase and sale of the Shares, as follows:

1. **Registration Statement.** The Company has prepared and filed with the Securities and Exchange Commission (the “Commission”) under the Securities Act of 1933, as amended, and the rules and regulations of the Commission thereunder (collectively, the “Securities Act”), a registration statement (File No. 333-186369), including a prospectus, relating to the Shares. Such registration statement, as amended at the time it became effective, including the information, if any, deemed pursuant to Rule 430A, 430B or 430C under the Securities Act to be part of the registration statement at the time of its effectiveness (“Rule 430 Information”), is referred to herein as the “Registration Statement”; and as used herein, the term “Preliminary Prospectus” means each prospectus included in such registration statement (and any amendments thereto) before effectiveness, any prospectus filed with the Commission pursuant to Rule 424(a) under the Securities Act and the prospectus included in the Registration Statement at the time of its effectiveness that omits Rule 430 Information, and the term “Prospectus” means the prospectus in the form first used (or made available to the Underwriters by the Company upon the request of a purchaser pursuant to Rule 173 under the Securities Act) in connection with confirmation of sales of the Shares. If the Company has filed an abbreviated registration statement pursuant to Rule 462(b) under the Securities Act (the “Rule 462 Registration Statement”), then any reference herein to the term “Registration Statement” shall be deemed to include such Rule 462 Registration Statement. Any reference in this Agreement to the Registration Statement, any Preliminary Prospectus or the Prospectus shall be deemed to refer to and include the documents incorporated by reference therein pursuant to Item 12 of Form S-3 under the Securities Act, as of the effective date of the Registration Statement or the date of such Preliminary Prospectus or the Prospectus, as the case may be, and any reference to “amend”, “amendment” or “supplement” with respect to the Registration Statement, any Preliminary Prospectus or the Prospectus shall be deemed to refer to and include any documents filed after such date under the Securities Exchange Act of 1934, as amended, and the rules and regulations of the Commission thereunder (collectively, the “Exchange Act”) that are deemed to be incorporated by reference therein. Capitalized terms used but not defined herein shall have the meanings given to such terms in the Registration Statement and the Prospectus.

At or prior to the Applicable Time (as defined below), the Company had prepared the following information (collectively with the pricing information set forth on Annex B, the “Pricing Disclosure Package”): a Preliminary Prospectus dated July 10, 2013 and each “free-writing prospectus” (as defined pursuant to Rule 405 under the Securities Act) listed on Annex B hereto.

“Applicable Time” means 9:00 P.M., New York City time, on July 11, 2013.

2. Purchase of the Shares by the Underwriters.

(a) The Company agrees to issue and sell the Underwritten Shares to the several Underwriters as provided in this Agreement, and each Underwriter, on the basis of the representations, warranties and agreements set forth herein and subject to the conditions set forth herein, agrees, severally and not jointly, to purchase from the Company the respective number of Underwritten Shares set forth

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opposite such Underwriter’s name in Schedule 1 hereto at a price per share (the “Purchase Price”) of \$4.70.

In addition, the Company agrees to issue and sell the Option Shares to the several Underwriters as provided in this Agreement, and the Underwriters, on the basis of the representations, warranties and agreements set forth herein and subject to the conditions set forth herein, shall have the option to purchase, severally and not jointly, from the Company the Option Shares at the Purchase Price less an amount per share equal to any dividends or distributions declared by the Company and payable on the Underwritten Shares but not payable on the Option Shares.

If any Option Shares are to be purchased, the number of Option Shares to be purchased by each Underwriter shall be the number of Option Shares which bears the same ratio to the aggregate number of Option Shares being purchased as the number of Underwritten Shares set forth opposite the name of such Underwriter in Schedule 1 hereto (or such number increased as set forth in Section 10 hereof) bears to the aggregate number of Underwritten Shares being purchased from the Company by the several Underwriters, subject, however, to such adjustments to eliminate any fractional Shares as the Representatives in their sole discretion shall make.

The Underwriters may exercise the option to purchase Option Shares at any time in whole, or from time to time in part, on or before the thirtieth day following the date of the Prospectus, by written notice from the Representatives to the Company. Such notice shall set forth the aggregate number of Option Shares as to which the option is being exercised and the date and time when the Option Shares are to be delivered and paid for, which may be the same date and time as the Closing Date (as hereinafter defined) but shall not be earlier than the Closing Date or later than the tenth full business day (as hereinafter defined) after the date of such notice (unless such time and date are postponed in accordance with the provisions of Section 10 hereof). Any such notice shall be given at least two business days prior to the date and time of delivery specified therein.

(b) The Company understands that the Underwriters intend to make a public offering of the Shares as soon after the effectiveness of this Agreement as in the judgment of the Representatives is advisable, and initially to offer the Shares on the terms set forth in the Prospectus. The Company acknowledges and agrees that the Underwriters may offer and sell Shares to or through any affiliate of an Underwriter.

(c) Payment for the Shares shall be made by wire transfer in immediately available funds to the account specified by the Company to the Representatives in the case of the Underwritten Shares, at the offices of Davis Polk & Wardwell LLP, 450 Lexington Avenue, New York, New York 10017, at 10:00 A.M., New York City time, on July 17, 2013, or at such other time or place on the same or such other date, not later than the fifth business day thereafter, as the Representatives and the Company may agree upon in writing or, in the case of the Option Shares, on the date and at the time and place specified by the Representatives in the written notice of the Underwriters’ election to purchase such Option Shares. The time and date of such payment for the Underwritten Shares is referred to herein as the “Closing Date”, and the time and date for such payment for the Option Shares, if other than the Closing Date, is herein referred to as the “Additional Closing Date”.

Payment for the Shares to be purchased on the Closing Date or the Additional Closing Date, as the case may be, shall be made against delivery to the Representatives for the respective accounts of the several Underwriters of the Shares to be purchased on the Closing Date or the Additional Closing Date, as the case may be, with any transfer taxes payable in connection with the sale of such Shares duly paid by the Company. Delivery of the Shares shall be made through the facilities of The Depository Trust Company (“DTC”) unless the Representatives shall otherwise instruct. The certificates for the Shares will be

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made available for inspection by the Representatives at the office of DTC or its designated custodian not later than 1:00 P.M., New York City time, on the business day prior to the Closing Date or the Additional Closing Date, as the case may be.

(d) The Company acknowledges and agrees that the Underwriters are acting solely in the capacity of an arm’s length contractual counterparty to the Company with respect to the offering of Shares contemplated hereby (including in connection with determining the terms of the offering) and not as a financial advisor or a fiduciary to, or an agent of, the Company or any other person. Additionally, neither the Representatives nor any other Underwriter are advising the Company or any other person as to any legal, tax, investment, accounting or regulatory matters in any jurisdiction. The Company shall consult with its own advisors concerning such matters and shall be responsible for making its own independent investigation and appraisal of the transactions contemplated hereby, and the Underwriters shall have no responsibility or liability to the Company with respect thereto. Any review by the Underwriters of the Company, the transactions contemplated hereby or other matters relating to such transactions will be performed solely for the benefit of the Underwriters and shall not be on behalf of the Company.

3. Representations and Warranties of the Company. The Company represents and warrants to each Underwriter that:

(a) *Preliminary Prospectus.* No order preventing or suspending the use of any Preliminary Prospectus has been issued by the Commission, and each Preliminary Prospectus included in the Pricing Disclosure Package, at the time of filing thereof, complied in all material respects with the Securities Act, and no Preliminary Prospectus, at the time of filing thereof, contained any untrue statement of a material fact or omitted to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided that the Company makes no representation and warranty with respect to any statements or omissions made in reliance upon and

in conformity with information relating to any Underwriter furnished to the Company in writing by such Underwriter through the Representatives expressly for use in any Preliminary Prospectus, it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in Section 7(b) hereof.

(b) *Pricing Disclosure Package.* The Pricing Disclosure Package as of the Applicable Time did not, and as of the Closing Date and as of the Additional Closing Date, as the case may be, will not, contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided that the Company makes no representation and warranty with respect to any statements or omissions made in reliance upon and in conformity with information relating to any Underwriter furnished to the Company in writing by such Underwriter through the Representatives expressly for use in such Pricing Disclosure Package, it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in Section 7(b) hereof.

(c) *Issuer Free Writing Prospectus.* Other than the Registration Statement, the Preliminary Prospectus and the Prospectus, the Company (including its agents and representatives, other than the Underwriters in their capacity as such) has not prepared, used, authorized, approved or referred to and will not prepare, use, authorize, approve or refer to any “written communication” (as defined in Rule 405 under the Securities Act) that constitutes an offer to sell or solicitation of an offer to buy the Shares (each such communication by the Company or its agents and representatives (other than a communication referred to in clause (i)

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below) an “Issuer Free Writing Prospectus”) other than (i) any document not constituting a prospectus pursuant to Section 2(a)(10)(a) of the Securities Act or Rule 134 under the Securities Act or (ii) the documents listed on Annex B hereto, each electronic road show and any other written communications approved in writing in advance by the Representatives. Each such Issuer Free Writing Prospectus complied in all material respects with the Securities Act, has been or will be (within the time period specified in Rule 433) filed in accordance with the Securities Act (to the extent required thereby) and, when taken together with the Preliminary Prospectus accompanying, or delivered prior to delivery of, such Issuer Free Writing Prospectus, did not, and as of the Closing Date and as of the Additional Closing Date, as the case may be, will not, contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided that the Company makes no representation and warranty with respect to any statements or omissions made in each such Issuer Free Writing Prospectus or Preliminary Prospectus in reliance upon and in conformity with information relating to any Underwriter furnished to the Company in writing by such Underwriter through the Representatives expressly for use in such Issuer Free Writing Prospectus or Preliminary Prospectus, it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in Section 7(b) hereof.

(d) *Emerging Growth Company.* From the time of initial filing of the Registration Statement with the Commission (or, if earlier, the first date on which the Company engaged directly or through any person authorized to act on its behalf in any Testing-the-Waters Communication) through the date hereof, the Company has been and as of the date hereof is an “emerging growth company,” as defined in Section 2(a) of the Securities Act (an “Emerging Growth Company”). “Testing-the-Waters Communication” means any oral or written communication with potential investors undertaken in reliance on Section 5(d) of the Securities Act.

(e) *Testing-the-Waters Materials.* The Company (i) has not alone engaged in any Testing-the-Waters Communications other than Testing-the-Waters Communications with the consent of the Representatives with entities that are qualified institutional buyers within the meaning of Rule 144A under the Securities Act or institutions that are accredited investors within the meaning of Rule 501 under the Securities Act and (ii) has not authorized anyone other than the Representatives to engage in Testing-the-Waters Communications. The Company reconfirms that the Representatives have been authorized to act on its behalf in undertaking Testing-the-Waters Communications. The Company has not distributed or approved for distribution any Written Testing-the-Waters Communications other than those listed on Annex D hereto. “Written Testing-the-Waters Communication” means any Testing-the-Waters Communication that is a written communication within the meaning of Rule 405 under the Securities Act. Any individual Written Testing-the-Waters Communication does not conflict with the information contained in the Registration Statement or the Pricing Disclosure Package, complied in all material respects with the Securities Act, and when taken together with the Pricing Disclosure Package as of the Applicable Time, did not, and as of the Closing Date and as of the Additional Closing Date, as the case may be, will not, contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(f) *Registration Statement and Prospectus.* The Registration Statement has been declared effective by the Commission. No order suspending the effectiveness of the Registration Statement has been issued by the Commission, and, to the knowledge of the Company, no proceeding for that purpose or pursuant to Section 8A of the Securities Act against the Company

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or related to the offering of the Shares has been initiated or threatened by the Commission; as of the applicable effective date of the Registration Statement and any post-effective amendment thereto, the Registration Statement and any such post-effective amendment complied and will comply in all material respects with the Securities Act, and did not and will not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary in order to make the statements therein not misleading; and as of the date of the Prospectus and any amendment or supplement thereto and as of the Closing Date and as of the Additional Closing Date, as the case may be, the Prospectus will not contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided that the Company makes no representation and warranty with respect to any statements or omissions made in reliance upon and in conformity with information relating to any Underwriter furnished to the Company in writing by such Underwriter through the Representatives expressly for use in the Registration Statement and the Prospectus and any amendment or supplement thereto, it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in Section 7(b) hereof.

(g) *Incorporated Documents.* The documents incorporated by reference in the Registration Statement, the Prospectus and the Pricing Disclosure Package, when they were filed with the Commission conformed in all material respects to the requirements of the Exchange Act, and

none of such documents contained any untrue statement of a material fact or omitted to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading; and any further document so filed and incorporated by reference in the Registration Statement, the Prospectus or the Pricing Disclosure Package, when such documents are filed with the Commission, will conform in all material respects to the requirements of the Exchange Act and will not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(h) *Financial Statements.* The financial statements (including the related notes thereto) of the Company and its consolidated subsidiaries included or incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus comply in all material respects with the applicable requirements of the Securities Act and the Exchange Act, as applicable, and present fairly the financial position of the Company and its consolidated subsidiaries as of the dates indicated and the results of their operations and the changes in their cash flows for the periods specified; such financial statements have been prepared in conformity with generally accepted accounting principles in the United States (“GAAP”) applied on a consistent basis throughout the periods covered thereby, except as otherwise disclosed therein and, in the case of unaudited, interim financial statements, subject to normal year-end audit adjustments and the exclusion of certain footnotes, and any supporting schedules included or incorporated by reference in the Registration Statement present fairly the information required to be stated therein; and the other financial information included or incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus has been derived from the accounting records of the Company and its consolidated subsidiaries and presents fairly the information shown thereby.

(i) *No Material Adverse Change.* Since the date of the most recent financial statements of the Company included or incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus, (i) there has not been any material change in the capital stock (other than the issuance of shares of Common Stock upon exercise of stock options and warrants described as outstanding in, and the grant of options and awards under

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existing equity incentive plans described in, the Registration Statement, the Pricing Disclosure Package and the Prospectus), short-term debt or long-term debt of the Company or any of its subsidiaries, or any dividend or distribution of any kind declared, set aside for payment, paid or made by the Company on any class of capital stock, or any material adverse change, or any development that would reasonably be expected to result in a material adverse change, in or affecting the business, properties, management, financial position, stockholders’ equity, results of operations or prospects of the Company and its subsidiaries taken as a whole; (ii) neither the Company nor any of its subsidiaries has entered into any transaction or agreement (whether or not in the ordinary course of business) that is material to the Company and its subsidiaries taken as a whole or incurred any liability or obligation, direct or contingent, that is material to the Company and its subsidiaries taken as a whole; and (iii) neither the Company nor any of its subsidiaries has sustained any loss or interference with its business that is material to the Company and its subsidiaries taken as a whole and that is either from fire, explosion, flood or other calamity, whether or not covered by insurance, or from any labor disturbance or dispute or any action, order or decree of any court or arbitrator or governmental or regulatory authority, except in each of the foregoing clauses (i), (ii) or (iii) as otherwise disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus.

(j) *Organization and Good Standing.* The Company and each of its subsidiaries have been duly organized and are validly existing and in good standing under the laws of their respective jurisdictions of organization, are duly qualified to do business and are in good standing in each jurisdiction in which their respective ownership or lease of property or the conduct of their respective businesses requires such qualification, and have all power and authority necessary to own or hold their respective properties and to conduct the businesses in which they are engaged, except where the failure to be so qualified or in good standing or have such power or authority would not, individually or in the aggregate, have a material adverse effect on the business, properties, management, financial position, stockholders’ equity, results of operations or prospects of the Company and its subsidiaries taken as a whole or on the performance by the Company of its obligations under this Agreement (a “Material Adverse Effect”). The Company does not own or control, directly or indirectly, any corporation, association or other entity other than the subsidiaries listed in Exhibit 21 to the Registration Statement.

(k) *Capitalization.* The Company has an authorized capitalization as set forth in the Registration Statement, the Pricing Disclosure Package and the Prospectus under the heading “Capitalization”; all the outstanding shares of capital stock of the Company have been duly and validly authorized and issued and are fully paid and non-assessable and are not subject to any pre-emptive or similar rights; except as described in or expressly contemplated by the Pricing Disclosure Package and the Prospectus, there are no outstanding rights (including, without limitation, pre-emptive rights), warrants or options to acquire, or instruments convertible into or exchangeable for, any shares of capital stock or other equity interest in the Company or any of its subsidiaries, or any contract, commitment, agreement, understanding or arrangement of any kind relating to the issuance of any capital stock of the Company or any such subsidiary, any such convertible or exchangeable securities or any such rights, warrants or options; the capital stock of the Company conforms in all material respects to the description thereof contained in the Registration Statement, the Pricing Disclosure Package and the Prospectus; and all the outstanding shares of capital stock or other equity interests of each subsidiary owned, directly or indirectly, by the Company have been duly and validly authorized and issued, are fully paid and non-assessable (except, in the case of any foreign subsidiary, for directors’ qualifying shares ) and are owned directly or indirectly by the Company, free and clear of any lien, charge, encumbrance, security interest, restriction on voting or transfer or any other claim of any third party.

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(l) *Stock Options.* With respect to the stock options (the “Stock Options”) granted pursuant to the stock-based compensation plans of the Company and its subsidiaries (the “Company Stock Plans”), (i) to the knowledge of the Company, each Stock Option intended to qualify as an “incentive stock option” under Section 422 of the Code so qualifies, (ii) each grant of a Stock Option was duly authorized no later than the date on which the grant of such Stock Option was by its terms to be effective (the “Grant Date”) by all necessary corporate action, including, as applicable, approval by the board of directors of the Company (or a duly constituted and authorized committee thereof) and any required stockholder approval by the necessary number of votes or written consents, and, to the knowledge of the Company (other than with respect to due execution and delivery by the Company), the award agreement governing such grant (if any) was duly executed and delivered by each party thereto, (iii) each such grant was made in accordance with the terms of the Company Stock Plans, applicable Exchange Act and all other laws and regulatory rules or requirements, including applicable rules of the NASDAQ Global Market (the “Nasdaq Market”) and any other exchange on which Company securities are traded, and (iv) each such grant was properly accounted for in accordance with GAAP in the financial statements (including the related notes) of the Company and, as applicable, disclosed in the Company’s filings with the Commission in accordance with the Exchange Act and all

other applicable laws. The Company has not knowingly granted, and there is no and has been no policy or practice of the Company of granting, Stock Options prior to, or otherwise coordinating the grant of Stock Options with, the release or other public announcement of material information regarding the Company or its subsidiaries or their results of operations or prospects.

(m) *Due Authorization.* The Company has full right, power and authority to execute and deliver this Agreement and to perform its obligations hereunder; and all action required to be taken for the due and proper authorization, execution and delivery by it of this Agreement and the consummation by it of the transactions contemplated hereby has been duly and validly taken.

(n) *Underwriting Agreement.* This Agreement has been duly authorized, executed and delivered by the Company.

(o) *The Shares.* The Shares to be issued and sold by the Company hereunder have been duly authorized and, when issued and delivered and paid for as provided herein, will be duly and validly issued, will be fully paid and nonassessable and will conform in all material respects to the descriptions thereof in the Registration Statement, the Pricing Disclosure Package and the Prospectus; and the issuance of the Shares is not subject to any preemptive or similar rights.

(p) [Reserved].

(q) *Descriptions of the Underwriting Agreement.* This Agreement conforms in all material respects to the description thereof contained in the Registration Statement, the Pricing Disclosure Package and the Prospectus.

(r) *No Violation or Default.* Neither the Company nor any of its subsidiaries is (i) in violation of its charter or by-laws or similar organizational documents; (ii) in default, and no event has occurred that, with notice or lapse of time or both, would constitute such a default, in the due performance or observance of any term, covenant or condition contained in any indenture, mortgage, deed of trust, loan agreement or other agreement or instrument to which the Company or any of its subsidiaries is a party or by which the Company or any of its subsidiaries is bound or to which any of the property or assets of the Company or any of its subsidiaries is subject; or (iii) in violation of any law or statute or any judgment, order, rule or regulation of any court or arbitrator or governmental or regulatory authority having jurisdiction over the Company or any of its subsidiaries, except, in

the case of clauses (ii) and (iii) above, for any such default or violation that would not, individually or in the aggregate, have a Material Adverse Effect.

(s) *No Conflicts.* The execution, delivery and performance by the Company of this Agreement, the issuance and sale of the Shares and the consummation of the transactions contemplated by this Agreement will not (i) conflict with or result in a breach or violation of any of the terms or provisions of, or constitute a default under, or result in the creation or imposition of any lien, charge or encumbrance upon any property or assets of the Company or any of its subsidiaries pursuant to, any indenture, mortgage, deed of trust, loan agreement or other agreement or instrument to which the Company or any of its subsidiaries is a party or by which the Company or any of its subsidiaries is bound or to which any of the property or assets of the Company or any of its subsidiaries is subject, (ii) result in any violation of the provisions of the charter or by-laws or similar organizational documents of the Company or any of its subsidiaries or (iii) result in the violation of any law or statute or any judgment, order, rule or regulation of any court or arbitrator or governmental or regulatory authority having jurisdiction over the Company or any of its subsidiaries, except, in the case of clauses (i) and (iii) above, for any such conflict, breach, violation or default that would not, individually or in the aggregate, have a Material Adverse Effect.

(t) *No Consents Required.* No consent, approval, authorization, order, license, registration or qualification of or with any court or arbitrator or governmental or regulatory authority is required for the execution, delivery and performance by the Company of this Agreement, the issuance and sale of the Shares and the consummation of the transactions contemplated by this Agreement, except for the registration of the Shares under the Securities Act and such consents, approvals, authorizations, orders and registrations or qualifications as have already been obtained or made or as may be required by the Financial Industry Regulatory Authority, Inc. ("FINRA") or the Nasdaq Market or under applicable state securities laws in connection with the purchase and distribution of the Shares by the Underwriters.

(u) *Legal Proceedings.* Except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, there are no legal, governmental or regulatory investigations, actions, suits or proceedings pending to which the Company or any of its subsidiaries is a party or to which any property of the Company or any of its subsidiaries is subject that, individually or in the aggregate, would reasonably be expected to have a Material Adverse Effect; to the knowledge of the Company, no such investigations, actions, suits or proceedings are threatened or contemplated by any governmental or regulatory authority or threatened by others; and (i) there are no current or pending legal, governmental or regulatory actions, suits or proceedings that are required under the Securities Act to be described in the Registration Statement, the Pricing Disclosure Package or the Prospectus that are not so described in the Registration Statement, the Pricing Disclosure Package and the Prospectus and (ii) there are no statutes, regulations or contracts or other documents that are required under the Securities Act to be filed as exhibits to the Registration Statement or described in the Registration Statement, the Pricing Disclosure Package or the Prospectus that are not so filed as exhibits to the Registration Statement or described in the Registration Statement, the Pricing Disclosure Package and the Prospectus.

(v) *Independent Accountants.* PricewaterhouseCoopers LLP, who have certified certain financial statements of the Company and its subsidiaries, is an independent registered public accounting firm with respect to the Company and its subsidiaries within the applicable rules and regulations adopted by the Commission and the Public Company Accounting Oversight Board (United States) and as required by the Securities Act.

(w) *Title to Real and Personal Property.* Except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, the Company and its subsidiaries have good title in fee simple (in the case of real property) to, or have valid rights to lease or otherwise use, all items of real and personal property and assets that are material to the business of the Company and its subsidiaries taken as a whole, in each case free and clear of all liens, encumbrances, claims and defects and imperfections of title except those that (i) do not materially interfere with the



use made and proposed to be made of such property by the Company and its subsidiaries or (ii) would not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect.

(x) *Title to Intellectual Property.* Except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, the Company and its subsidiaries own or possess adequate rights to all patents, patent applications, trademarks, service marks, trade names, trademark registrations and applications, service mark registrations and applications, domain names, goodwill associated with the foregoing, copyrights, licenses and know-how (including trade secrets and other unpatented and/or unpatentable proprietary or confidential information, systems or procedures) necessary for the conduct of their respective businesses in all material respects as currently conducted and as proposed to be conducted, and, to the knowledge of the Company, the conduct of their respective businesses does not and will not infringe, constitute a misappropriation of, or otherwise violate in any material respect any such rights of others. The Company and its subsidiaries have not received any written notice of any claim of infringement, misappropriation or other violation of any such rights of others or any written notice challenging the validity, scope or enforceability of their respective patents or rights therein, in each case, which could reasonably be expected to result in a Material Adverse Effect. The Company is not aware of any specific facts or combination of facts that cause the Company to reasonably conclude that any of the material issued or granted patents owned by or licensed to the Company or any of its subsidiaries is invalid or unenforceable and, to the knowledge of the Company, all such issued or granted patents are valid and enforceable.

(y) *No Undisclosed Relationships.* No relationship, direct or indirect, exists between or among the Company or any of its subsidiaries, on the one hand, and the directors, officers, stockholders, customers or suppliers of the Company or any of its subsidiaries, on the other, that is required by the Securities Act to be described in the Registration Statement and the Prospectus and that is not so described in such documents and in the Pricing Disclosure Package.

(z) *Investment Company Act.* The Company is not and, after giving effect to the offering and sale of the Shares and the application of the proceeds thereof as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, will not be required to register as an “investment company” or an entity “controlled” by an “investment company” within the meaning of the Investment Company Act of 1940, as amended, and the rules and regulations of the Commission thereunder (collectively, the “Investment Company Act”).

(aa) *Taxes.* The Company and its subsidiaries have filed all federal, state, local and foreign tax returns required to be filed through the date hereof and all such returns are true and complete in all material respects. The Company and its subsidiaries have paid all taxes shown as due on such returns, except for taxes being contested in good faith and for which adequate reserves have been taken, and except as would not, individually or in the aggregate, have a Material Adverse Effect. Except as otherwise disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus, there is no tax deficiency that has been, or would reasonably be expected to be, asserted against the Company or any of its subsidiaries or any of

their respective properties or assets, in each case, except as would not have a Material Adverse Effect.

(bb) *Licenses and Permits.* The Company and its subsidiaries possess all licenses, certificates, permits and other authorizations issued by, and have made all declarations and filings with, the appropriate federal, state, local or foreign governmental or regulatory authorities that are necessary for the ownership or lease of their respective properties or the conduct of their respective businesses as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, except where the failure to possess or make the same would not, individually or in the aggregate, have a Material Adverse Effect; and except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, neither the Company nor any of its subsidiaries has received notice of any revocation or modification of any such license, certificate, permit or authorization or has any reason to believe that any such license, certificate, permit or authorization will not be renewed in the ordinary course. Except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, as applicable, the Company and its subsidiaries (i) are, and at all times have been, in compliance with all statutes, rules and regulations applicable to the ownership, testing, development, manufacture, packaging, processing, use, distribution, storage, import, export or disposal of any product manufactured or distributed by the Company or its subsidiaries (“Applicable Laws”), except where such noncompliance would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect; and (ii) have not received any U.S. Food and Drug Administration (“FDA”) Form 483, written notice of adverse finding, warning letter, untitled letter or other correspondence or written notice from any court or arbitrator or governmental or regulatory authority alleging or asserting non-compliance with (x) any Applicable Laws or (y) any licenses, exemptions, certificates, approvals, clearances, authorizations, permits and supplements or amendments thereto required by any such Applicable Laws.

(cc) *No Labor Disputes.* No labor disturbance by or dispute with employees of the Company or any of its subsidiaries exists or, to the knowledge of the Company, is contemplated or threatened, and the Company is not aware of any existing or imminent labor disturbance by, or dispute with, the employees of any of its or its subsidiaries’ principal suppliers, contractors or customers, except as would not have a Material Adverse Effect.

(dd) *Compliance with and Liability under Environmental Laws.* (i) The Company and its subsidiaries (a) are, and at all prior times were, in compliance with any and all applicable federal, state, local and foreign laws, rules, regulations, requirements, decisions, judgments, decrees, orders and the common law relating to pollution or the protection of the environment, natural resources or human health or safety, including those relating to the generation, storage, treatment, use, handling, transportation, Release or threat of Release of Hazardous Materials (collectively, “Environmental Laws”), (b) have received and are in compliance with all permits, licenses, certificates or other authorizations or approvals required of them under applicable Environmental Laws to conduct their respective businesses, (c) have not received notice of any actual or potential liability under or relating to, or actual or potential violation of, any Environmental Laws, including for the investigation or remediation of any Release or threat of Release of Hazardous Materials, and have no knowledge of any event or condition that would reasonably be expected to result in any such notice, (d) are not conducting or paying for, in whole or in part, any investigation, remediation or other corrective action pursuant to any Environmental Law at any location, and (e) are not a party to any order, decree or agreement that imposes any obligation or liability under any Environmental Law, and (ii) there are no costs or liabilities associated with Environmental Laws of or relating to the Company or its subsidiaries, except in the case of each of (i) and (ii) above, for any such matter, as would not, individually or in the

aggregate, reasonably be expected to have a Material Adverse Effect; and (iii) except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, (a) there are no proceedings that are pending, or, to the knowledge of the Company, contemplated, against the Company or any of its subsidiaries under any Environmental Laws in which a governmental entity is also a party, other than such proceedings regarding which it is reasonably believed no monetary sanctions of \$100,000 or more will be imposed, (b) the Company and its subsidiaries are not aware of any facts or issues regarding compliance with Environmental Laws, or liabilities or other obligations under Environmental Laws, including the Release or threat of Release of Hazardous Materials, that would reasonably be expected to have a material effect on the capital expenditures, earnings or competitive position of the Company and its subsidiaries, and (c) none of the Company and its subsidiaries anticipates material capital expenditures relating to any Environmental Laws.

(ee) *Hazardous Materials.* There has been no storage, generation, transportation, use, handling, treatment, Release or threat of Release of Hazardous Materials by, relating to or caused by the Company or any of its subsidiaries (or, to the knowledge of the Company and its subsidiaries, any other entity (including any predecessor) for whose acts or omissions the Company or any of its subsidiaries is or would reasonably be expected to be liable) at, on, under or from any property or facility now or previously owned, operated or leased by the Company or any of its subsidiaries, or at, on, under or from any other property or facility, in violation of any Environmental Laws or in a manner or amount or to a location that would reasonably be expected to result in any liability under any Environmental Law, except for any violation or liability which would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect. “Hazardous Materials” means any material, chemical, substance, waste, pollutant, contaminant, compound, mixture, or constituent thereof, in any form or amount, including petroleum (including crude oil or any fraction thereof) and petroleum products, natural gas liquids, asbestos and asbestos containing materials, naturally occurring radioactive materials, brine, and drilling mud, regulated or which can give rise to liability under any Environmental Law. “Release” means any spilling, leaking, seepage, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, disposing, depositing, dispersing, or migrating in, into or through the environment, or in, into from or through any building or structure.

(ff) *Compliance with ERISA.* (i) Each employee benefit plan, within the meaning of Section 3(3) of the Employee Retirement Income Security Act of 1974, as amended (“ERISA”), for which the Company or any member of its “Controlled Group” (defined as any organization which is a member of a controlled group of corporations within the meaning of Section 414 of the Internal Revenue Code of 1986, as amended (the “Code”)) would have any liability (each, a “Plan”) has been maintained in compliance with its terms and the requirements of any applicable statutes, orders, rules and regulations, including but not limited to ERISA and the Code, except for noncompliance that would not reasonably be expected to result in material liability to the Company or its subsidiaries; (ii) no prohibited transaction, within the meaning of Section 406 of ERISA or Section 4975 of the Code, has occurred with respect to any Plan excluding transactions effected pursuant to a statutory or administrative exemption that would reasonably be expected to result in a material liability to the Company or its subsidiaries; (iii) for each Plan that is subject to the funding rules of Section 412 of the Code or Section 302 of ERISA, the minimum funding standard of Section 412 of the Code or Section 302 of ERISA, as applicable, has been satisfied (without taking into account any waiver thereof or extension of any amortization period) and is reasonably expected to be satisfied in the future (without taking into account any waiver thereof or extension of any amortization period); (iv) the fair market value of the assets of each Plan that is required to be funded exceeds the present value of all benefits accrued under such Plan

(determined based on those assumptions used to fund such Plan); (v) no “reportable event” (within the meaning of Section 4043(c) of ERISA) has occurred or is reasonably expected to occur that either has resulted, or would reasonably be expected to result, in material liability to the Company or its subsidiaries; (vi) neither the Company nor any member of the Controlled Group has incurred, nor reasonably expects to incur, any liability under Title IV of ERISA (other than contributions to the Plan or premiums to the PBGC, in the ordinary course and without default) in respect of a Plan (including a “multiemployer plan”, within the meaning of Section 4001(a)(3) of ERISA); and (vii) there is no pending audit or investigation by the Internal Revenue Service, the U.S. Department of Labor, the Pension Benefit Guaranty Corporation or any other governmental agency or any foreign regulatory agency with respect to any Plan that would reasonably be expected to result in material liability to the Company or its subsidiaries. None of the following events has occurred or is reasonably likely to occur: (x) a material increase in the aggregate amount of contributions required to be made to all Plans by the Company or its subsidiaries in the current fiscal year of the Company and its subsidiaries compared to the amount of such contributions made in the Company and its subsidiaries’ most recently completed fiscal year, other than an increase solely attributable to (A) an increase in the number of employees covered by such Plans or (B) an increase arising from the renewal in the ordinary course of business of contracts with vendors, insurers, plan administrators or other similar service providers under which the benefits of the Plans are provided; or (y) a material increase in the Company and its subsidiaries’ “accumulated post-retirement benefit obligations” (within the meaning of Statement of Financial Accounting Standards 106) compared to the amount of such obligations in the Company and its subsidiaries’ most recently completed fiscal year.

(gg) *Disclosure Controls.* The Company and its subsidiaries maintain an effective system of “disclosure controls and procedures” (as defined in Rule 13a-15(e) of the Securities Exchange Act of 1934, as amended, and the rules and regulations of the Commission thereunder (collectively, the “Exchange Act”)) that complies with the requirements of the Exchange Act and that has been designed to ensure that information required to be disclosed by the Company in reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Commission’s rules and forms, including controls and procedures designed to ensure that such information is accumulated and communicated to the Company’s management as appropriate to allow timely decisions regarding required disclosure. The Company and its subsidiaries have carried out evaluations of the effectiveness of their disclosure controls and procedures as required by Rule 13a-15 of the Exchange Act.

(hh) *Accounting Controls.* The Company and its subsidiaries maintain systems of “internal control over financial reporting” (as defined in Rule 13a-15(f) of the Exchange Act) that comply with the requirements of the Exchange Act and have been designed by, or under the supervision of, their respective principal executive and principal financial officers, or persons performing similar functions, 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, including, but not limited to, internal accounting controls sufficient to provide reasonable assurance that (i) transactions are executed in accordance with management’s general or specific authorizations; (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with generally accepted accounting principles and to maintain asset accountability; (iii) access to assets is permitted only in accordance with management’s general or specific authorization; (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences and (v) interactive data in eXtensible Business Reporting Language included or incorporated by reference in the Registration Statement fairly presents the

information called for in all material respects and is prepared in accordance with the Commission's rules and guidelines applicable thereto. Except as disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus, there are no material weaknesses in the Company's internal controls. The Company's auditors and the Audit Committee of the Board of Directors of the Company have been advised of: (i) all significant deficiencies and material weaknesses in the design or operation of internal controls over financial reporting which have adversely affected or are reasonably likely to adversely affect the Company's ability to record, process, summarize and report financial information; and (ii) any fraud, whether or not material, that involves management or other employees who have a significant role in the Company's internal controls over financial reporting.

(ii) *eXtensible Business Reporting Language*. The interactive data in eXtensible Business Reporting Language included or incorporated by reference in the Registration Statement fairly presents the information called for in all material respects and has been prepared in accordance with the Commission's rules and guidelines applicable thereto.

(jj) *Insurance*. Except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, the Company and its subsidiaries have insurance covering their respective properties, operations, personnel and businesses, including business interruption insurance, which insurance is in amounts and insures against such losses and risks as the Company reasonably believes are adequate to protect the Company and its subsidiaries and their respective businesses; and neither the Company nor any of its subsidiaries has (i) received notice from any insurer or agent of such insurer that material capital improvements or other expenditures are required or necessary to be made in order to continue such insurance or (ii) any reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage at reasonable cost from similar insurers as may be necessary to continue its business.

(kk) *No Unlawful Payments*. None of the Company, its subsidiaries and, to the knowledge of the Company, any director, officer, agent, employee or other person associated with or acting on behalf of the Company or any of its subsidiaries has (i) used any corporate funds for any unlawful contribution, gift, entertainment or other unlawful expense relating to political activity; (ii) made any direct or indirect unlawful payment to any foreign or domestic government official or employee from corporate funds; (iii) violated or is in violation of any provision of the Foreign Corrupt Practices Act of 1977; or (iv) made any bribe, rebate, payoff, influence payment, kickback or other unlawful payment.

(ll) *Compliance with Money Laundering Laws*. The operations of the Company and its subsidiaries are and have been conducted at all times in compliance with applicable financial recordkeeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, the money laundering statutes of all jurisdictions, the rules and regulations thereunder and any related or similar rules, regulations or guidelines, issued, administered or enforced by any governmental agency (collectively, the "Money Laundering Laws") and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any of its subsidiaries with respect to the Money Laundering Laws is pending or, to the knowledge of the Company, threatened.

(mm) *Compliance with OFAC*. None of the Company, its subsidiaries and, to the knowledge of the Company, any director, officer, agent, employee or affiliate of the Company or any of its subsidiaries is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Department of the Treasury ("OFAC"); and the Company will

not, directly or indirectly, use the proceeds of the offering of the Shares hereunder, or lend, contribute or otherwise make available such proceeds to any subsidiary, joint venture partner or other person or entity, for the purpose of financing the activities of any person currently subject to any U.S. sanctions administered by OFAC.

(nn) *No Restrictions on Subsidiaries*. Except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, no subsidiary of the Company is currently prohibited, directly or indirectly, under any agreement or other instrument to which it is a party or is subject, from paying any dividends to the Company, from making any other distribution on such subsidiary's capital stock, from repaying to the Company any loans or advances to such subsidiary from the Company or from transferring any of such subsidiary's properties or assets to the Company or any other subsidiary of the Company.

(oo) *No Broker's Fees*. None of the Company and its subsidiaries is a party to any contract, agreement or understanding with any person (other than this Agreement) that would give rise to a valid claim against the Company or any of its subsidiaries or any Underwriter for a brokerage commission, finder's fee or like payment in connection with the offering and sale of the Shares.

(pp) *No Registration Rights*. No person has the right to require the Company or any of its subsidiaries to register any securities for sale under the Securities Act by reason of the filing of the Registration Statement with the Commission or the issuance and sale of the Shares.

(qq) *No Stabilization*. The Company has not taken, directly or indirectly, without giving effect to activities by the Underwriters, any action designed to or that would reasonably be expected to cause or result in any stabilization or manipulation of the price of the Shares.

(rr) [Reserved].

(ss) *Margin Rules*. The application of the proceeds received by the Company from the issuance, sale and delivery of the Shares as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus will not violate Regulation T, U or X of the Board of Governors of the Federal Reserve System or any other regulation of such Board of Governors.

(tt) *Forward-Looking Statements*. No forward-looking statement (within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act) contained in the Registration Statement, the Pricing Disclosure Package or the Prospectus has been made or reaffirmed without a reasonable basis or has been disclosed other than in good faith.

(uu) *Statistical and Market Data.* Nothing has come to the attention of the Company that has caused the Company to believe that the statistical and market-related data included in the Registration Statement, the Pricing Disclosure Package and the Prospectus is not based on or derived from sources that are reliable and accurate in all material respects.

(vv) *Clinical Trials.* The clinical and pre-clinical trials conducted by or, to the knowledge of the Company after due inquiry, on behalf of or sponsored by the Company or its subsidiaries, or in which the Company or its subsidiaries have participated, that are described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, or the results of which are referred to in the Registration Statement, the Pricing Disclosure Package and the Prospectus, as applicable, were, and if still pending are, being conducted in all material respects in accordance with standard medical and scientific research standards and procedures for products

or product candidates comparable to those being developed by the Company and all applicable statutes and all applicable rules and regulations of the FDA and comparable regulatory agencies outside of the United States to which they are subject (collectively, the “Regulatory Authorities”) and current Good Clinical Practices and Good Laboratory Practices; the descriptions in the Registration Statement, the Pricing Disclosure Package or the Prospectus of the results of such studies and tests are accurate and complete descriptions in all material respects and fairly present the data derived therefrom; the Company has no knowledge of any other trials not described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, the results of which are inconsistent with or call into question the results described or referred to in the Registration Statement, the Pricing Disclosure Package and the Prospectus; the Company and its subsidiaries have operated at all times and are currently in compliance in all material respects with all applicable statutes, rules and regulations of the Regulatory Authorities; neither the Company nor any of its subsidiaries have received any written notices, correspondence or other communications from the Regulatory Authorities or any other governmental agency requiring or threatening the termination, material modification or suspension of any clinical or pre-clinical trials that are described in the Registration Statement, the Pricing Disclosure Package and the Prospectus or the results of which are referred to in the Registration Statement, the Pricing Disclosure Package and the Prospectus, other than ordinary course communications with respect to modifications in connection with the design and implementation of such trials, and, to the Company’s best knowledge, there are no reasonable grounds for the same.

(ww) *Regulatory Filings.* The Company has not failed to file with the Regulatory Authorities any required filing, declaration, listing, registration, report or submission with respect to the Company’s product candidates that are described or referred to in the Registration Statement, the Pricing Disclosure Package and the Prospectus; all such filings, declarations, listings, registrations, reports or submissions were in material compliance with applicable laws when filed; and no deficiencies regarding compliance with applicable law have been asserted by any applicable regulatory authority with respect to any such filings, declarations, listings, registrations, reports or submissions.

(xx) *Sarbanes-Oxley Act.* There is and has been no material failure on the part of the Company or, to the knowledge of the Company, any of the Company’s directors or officers, in their capacities as such, to comply with any applicable provision of the Sarbanes-Oxley Act of 2002 and the rules and regulations promulgated in connection therewith (the “Sarbanes-Oxley Act”), including Section 402 related to loans and Sections 302 and 906 related to certifications.

(yy) *Status under the Securities Act.* At the time of filing the Registration Statement and any post-effective amendment thereto, at the earliest time thereafter that the Company or any offering participant made a *bona fide* offer (within the meaning of Rule 164(h)(2) under the Securities Act) of the Shares and at the date hereof, the Company was not and is not an “ineligible issuer,” as defined in Rule 405 under the Securities Act.

4. Further Agreements of the Company. The Company covenants and agrees with each Underwriter that:

(a) *Required Filings.* The Company will file the final Prospectus with the Commission within the time periods specified by Rule 424(b) and Rule 430A, 430B or 430C under the Securities Act, will file any Issuer Free Writing Prospectus (including the term sheet substantially in the form of Annex C hereto) to the extent required by Rule 433 under the Securities Act; will file promptly all reports and any definitive proxy or information statements required to be filed by the Company with the Commission pursuant to Section 13(a), 13(c), 14 or

15(d) of the Exchange Act subsequent to the date of the Prospectus and for so long as the delivery of a prospectus is required in connection with the offering or sale of the Shares and will furnish copies of the Prospectus and each Issuer Free Writing Prospectus (to the extent not previously delivered) to the Underwriters in New York City as soon as practicable, and in any event no later than 10:00 A.M., New York City time, on the second business day succeeding the date of this Agreement, in such quantities as the Representatives may reasonably request.

(b) *Delivery of Copies.* The Company will deliver, without charge, (i) to the Representatives, upon request, signed copies of the Registration Statement as originally filed and each amendment thereto, in each case including all exhibits and consents filed therewith; and (ii) to each Underwriter (A) upon request, a conformed copy of the Registration Statement as originally filed and each amendment thereto (without exhibits) and (B) during the Prospectus Delivery Period (as defined below), as many copies of the Prospectus (including all amendments and supplements thereto and documents incorporated by reference therein and each Issuer Free Writing Prospectus) as the Representatives may reasonably request. As used herein, the term “Prospectus Delivery Period” means such period of time after the first date of the public offering of the Shares as in the opinion of counsel for the Underwriters a prospectus relating to the Shares is required by law to be delivered (or required to be delivered but for Rule 172 under the Securities Act) in connection with sales of the Shares by any Underwriter or dealer.

(c) *Amendments or Supplements, Issuer Free Writing Prospectuses.* Before preparing, using, authorizing, approving, referring to or filing any Issuer Free Writing Prospectus, and before filing any amendment or supplement to the Registration Statement or the Prospectus, the Company will furnish to the Representatives and counsel for the Underwriters a copy of the proposed Issuer Free Writing Prospectus, amendment or supplement for review and will not prepare, use, authorize, approve, refer to or file any such Issuer Free Writing Prospectus or file any such proposed amendment or supplement to which the Representatives reasonably object.

(d) *Notice to the Representatives.* The Company will advise the Representatives promptly, and confirm such advice in writing, (i) when any amendment to the Registration Statement has been filed or becomes effective; (ii) when any supplement to the Prospectus, any Issuer Free Writing Prospectus, or any Written Testing-the-Waters Communication or any amendment to the Prospectus has been filed; (iii) of any request by the Commission for any amendment to the Registration Statement or any amendment or supplement to the Prospectus or the receipt of any comments from the Commission relating to the Registration Statement or any other request by the Commission for any additional information, including, but not limited to, any request for information concerning any Testing-the-Waters Communication; (iv) of the issuance by the Commission of any order suspending the effectiveness of the Registration Statement or preventing or suspending the use of any Preliminary Prospectus, any of the Pricing Disclosure Package or the Prospectus or any Written Testing-the-Waters Communication or the initiation or threatening of any proceeding for that purpose or pursuant to Section 8A of the Securities Act; (v) of the occurrence of any event within the Prospectus Delivery Period as a result of which the Prospectus, the Pricing Disclosure Package, any Issuer Free Writing Prospectus or any Written Testing-the-Waters Communication as then amended or supplemented would include any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances existing when the Prospectus, the Pricing Disclosure Package, any such Issuer Free Writing Prospectus or Written Testing-the-Waters Communication is delivered to a purchaser, not misleading; and (vi) of the receipt by the Company of any notice with respect to any suspension of the qualification of the Shares for offer and sale in any jurisdiction or the initiation or threatening of any proceeding for such purpose; and the Company will use its best efforts to prevent the issuance of any such order suspending the

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effectiveness of the Registration Statement, preventing or suspending the use of any Preliminary Prospectus, any of the Pricing Disclosure Package or the Prospectus or any Written Testing-the-Waters Communication or suspending any such qualification of the Shares and, if any such order is issued, will use its reasonable best efforts to obtain as soon as possible the withdrawal thereof.

(e) *Ongoing Compliance.* (1) If during the Prospectus Delivery Period (i) any event shall occur or condition shall exist as a result of which the Prospectus as then amended or supplemented would include any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances existing when the Prospectus is delivered to a purchaser, not misleading or (ii) it is necessary to amend or supplement the Prospectus to comply with law, the Company will immediately notify the Underwriters thereof and forthwith prepare and, subject to paragraph (c) above, file with the Commission and furnish to the Underwriters and to such dealers as the Representatives may designate such amendments or supplements to the Prospectus as may be necessary so that the statements in the Prospectus as so amended or supplemented will not, in the light of the circumstances existing when the Prospectus is delivered to a purchaser, be misleading or so that the Prospectus will comply with law and (2) if at any time prior to the Closing Date (i) any event shall occur or condition shall exist as a result of which the Pricing Disclosure Package as then amended or supplemented would include any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances existing when the Pricing Disclosure Package is delivered to a purchaser, not misleading or (ii) it is necessary to amend or supplement the Pricing Disclosure Package to comply with law, the Company will immediately notify the Underwriters thereof and forthwith prepare and, subject to paragraph (c) above, file with the Commission (to the extent required) and furnish to the Underwriters and to such dealers as the Representatives may designate such amendments or supplements to the Pricing Disclosure Package as may be necessary so that the statements in the Pricing Disclosure Package as so amended or supplemented will not, in the light of the circumstances existing when the Pricing Disclosure Package is delivered to a purchaser, be misleading or so that the Pricing Disclosure Package will comply with law.

(f) *Blue Sky Compliance.* The Company will qualify the Shares for offer and sale under the securities or Blue Sky laws of such jurisdictions as the Representatives shall reasonably request and will continue such qualifications in effect so long as required for distribution of the Shares; provided that the Company shall not be required to (i) qualify as a foreign corporation or other entity or as a dealer in securities in any such jurisdiction where it would not otherwise be required to so qualify, (ii) file any general consent to service of process in any such jurisdiction or (iii) subject itself to taxation in any such jurisdiction if it is not otherwise so subject.

(g) *Earning Statement.* The Company will make generally available to its security holders and the Representatives as soon as practicable an earning statement that satisfies the provisions of Section 11(a) of the Securities Act and Rule 158 of the Commission promulgated thereunder covering a period of at least twelve months beginning with the first fiscal quarter of the Company occurring after the “effective date” (as defined in Rule 158) of the Registration Statement.

(h) *Clear Market.* For a period of 90 days after the date of the Prospectus, the Company will not (i) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, or file with the Commission a registration statement under the Securities Act relating to, any shares of Stock or any securities convertible into or exercisable or exchangeable for Stock, or publicly disclose the intention to make any

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offer, sale, pledge, disposition or filing, or (ii) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of the Stock or any such other securities, whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of Stock or such other securities, in cash or otherwise, without the prior written consent of J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated, other than (A) the Shares to be sold hereunder and the Notes to be sold under the underwriting agreement dated the date hereof among the Company and the Convertible Underwriters, (B) issuances of shares of Stock upon the conversion of any Notes, (C) any shares of Stock of the Company issued upon the exercise of options granted under Company Stock Plans or warrants described as outstanding in the Registration Statement, the Pricing Disclosure Package and the Prospectus, (D) any options and other awards granted under Company Stock Plans, (E) the filing by the Company of any registration statement on Form S-8 or a successor form thereto and (F) shares of Stock or other securities issued in connection with a transaction that includes a commercial relationship (including joint ventures, marketing or distribution arrangements, collaboration agreements or intellectual property license agreements) or any acquisition of assets or not less than a majority or controlling portion of the equity of another entity, provided that (x) the aggregate number of shares issued pursuant to this clause (F) shall not exceed 5.0% of the total number of outstanding shares of Stock immediately following the issuance and sale of the Underwritten Shares pursuant hereto and (y) the recipient of any such shares of Stock and securities issued pursuant to this clause (F) during the 90-day restricted period described above shall enter into an agreement substantially in the form of Exhibit A hereto.

(i) *Use of Proceeds.* The Company will apply the net proceeds from the sale of the Shares in all material respects as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus under the heading “Use of proceeds”.

(j) *No Stabilization.* The Company will not take, directly or indirectly, without giving effect to activities by the Underwriters, any action designed to or that would reasonably be expected to cause or result in any stabilization or manipulation of the price of the Stock.

(k) *Exchange Listing.* The Company will use its best efforts to list the Shares on the Nasdaq Market.

(l) *Reports.* During a period of two years from the date hereof, the Company will furnish to the Representatives, as soon as they are available, copies of all reports or other communications (financial or other) furnished to holders of the Shares, and copies of any reports and financial statements furnished to or filed with the Commission or any national securities exchange or automatic quotation system; provided the Company will be deemed to have furnished such reports and financial statements to the Representatives to the extent they are filed on the Commission’s Electronic Data Gathering, Analysis, and Retrieval system or any successor system.

(m) *Record Retention.* The Company will, pursuant to reasonable procedures developed in good faith, retain copies of each Issuer Free Writing Prospectus that is not filed with the Commission in accordance with Rule 433 under the Securities Act.

(n) *Emerging Growth Company.* The Company will promptly notify the Representative if the Company ceases to be an Emerging Growth Company at any time prior to the later of (i) completion of the distribution of Shares within the meaning of the Securities Act and (ii) completion of the 90-day restricted period referred to in Section 4(h) hereof.

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5. Certain Agreements of the Underwriters. Each Underwriter hereby represents and agrees that:

(a) It has not used, authorized use of, referred to or participated in the planning for use of, and will not use, authorize use of, refer to or participate in the planning for use of, any “free writing prospectus”, as defined in Rule 405 under the Securities Act (which term includes use of any written information furnished to the Commission by the Company and not incorporated by reference into the Registration Statement and any press release issued by the Company) other than (i) a free writing prospectus that contains no “issuer information” (as defined in Rule 433(h)(2) under the Securities Act) that was not included (including through incorporation by reference) in the Preliminary Prospectus or a previously filed Issuer Free Writing Prospectus, (ii) any Issuer Free Writing Prospectus listed on Annex B or prepared pursuant to Section 3(c) or Section 4(c) above (including any electronic road show), or (iii) any free writing prospectus prepared by such underwriter and approved by the Company in advance in writing (each such free writing prospectus referred to in clauses (i) or (iii), an “Underwriter Free Writing Prospectus”).

(b) It has not and will not, without the prior written consent of the Company, use any free writing prospectus that contains the final terms of the Shares unless such terms have previously been included in a free writing prospectus filed with the Commission; *provided that* Underwriters may use a term sheet substantially in the form of Annex C hereto without the consent of the Company; *provided further that* any Underwriter using such term sheet shall notify the Company, and provide a copy of such term sheet to the Company, prior to, or substantially concurrently with, the first use of such term sheet.

(c) It is not subject to any pending proceeding under Section 8A of the Securities Act with respect to the offering (and will promptly notify the Company if any such proceeding against it is initiated during the Prospectus Delivery Period).

6. Conditions of Underwriters’ Obligations. The obligation of each Underwriter to purchase the Underwritten Shares on the Closing Date or the Option Shares on the Additional Closing Date, as the case may be, as provided herein is subject to the performance by the Company of its covenants and other obligations hereunder and to the following additional conditions:

(a) *Registration Compliance; No Stop Order.* No order suspending the effectiveness of the Registration Statement shall be in effect, and no proceeding for such purpose or pursuant to Section 8A under the Securities Act shall be pending before or threatened by the Commission; the Prospectus and each Issuer Free Writing Prospectus shall have been timely filed with the Commission under the Securities Act (in the case of an Issuer Free Writing Prospectus, to the extent required by Rule 433 under the Securities Act) and in accordance with Section 4(a) hereof; and all requests by the Commission for additional information shall have been complied with to the reasonable satisfaction of the Representatives.

(b) *Representations and Warranties.* The representations and warranties of the Company contained herein shall be true and correct on the date hereof and on and as of the Closing Date or the Additional Closing Date, as the case may be; and the statements of the Company and its officers made in any certificates delivered pursuant to this Agreement shall be true and correct on and as of the Closing Date or the Additional Closing Date, as the case may be.

(c) *No Downgrade.* Subsequent to the earlier of (A) the Applicable Time and (B) the execution and delivery of this Agreement, if there are any debt securities or preferred stock of,

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or guaranteed by, the Company or any of its subsidiaries that are rated by a “nationally recognized statistical rating organization,” as such term is defined in Section 3(a)(62) of the Exchange Act, (i) no downgrading shall have occurred in the rating accorded any such debt securities or preferred stock and (ii) no such organization shall have publicly announced that it has under surveillance or review, or has changed its outlook with respect to, its rating of any such debt securities or preferred stock (other than an announcement with positive implications of a possible upgrading).

(d) *No Material Adverse Change.* No event or condition of a type described in Section 3(i) hereof shall have occurred or shall exist, which event or condition is not described in the Pricing Disclosure Package (excluding any amendment or supplement thereto) and the Prospectus (excluding any amendment or supplement thereto) and the effect of which in the judgment of the Representatives makes it impracticable or

inadvisable to proceed with the offering, sale or delivery of the Shares on the Closing Date or the Additional Closing Date, as the case may be, on the terms and in the manner contemplated by this Agreement, the Pricing Disclosure Package and the Prospectus.

(e) *Officer's Certificate.* The Representatives shall have received on and as of the Closing Date or the Additional Closing Date, as the case may be, a certificate on behalf of the Company of the chief financial officer or chief accounting officer of the Company and one additional senior executive officer of the Company who is reasonably satisfactory to the Representatives (i) confirming that such officers have carefully reviewed the Registration Statement, the Pricing Disclosure Package and the Prospectus and, to the knowledge of such officers, the representations set forth in Sections 3(b) and 3(f) hereof are true and correct, (ii) confirming that the other representations and warranties of the Company in this Agreement are true and correct and that the Company has in all material respects complied with all agreements and satisfied all conditions on its part to be performed or satisfied hereunder at or prior to the Closing Date or the Additional Closing Date, as the case may be, and (iii) to the effect set forth in paragraphs (a), (c) and (d) above.

(f) *Comfort Letters.* On the date of this Agreement and on the Closing Date or the Additional Closing Date, as the case may be, PricewaterhouseCoopers LLP shall have furnished to the Representatives, at the request of the Company, letters, dated the respective dates of delivery thereof and addressed to the Underwriters, in form and substance reasonably satisfactory to the Representatives, containing statements and information of the type customarily included in accountants' "comfort letters" to underwriters with respect to the financial statements and certain financial information contained or incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus; provided, that the letter delivered on the Closing Date or the Additional Closing Date, as the case may be, shall use a "cut-off" date no more than three business days prior to such Closing Date or such Additional Closing Date, as the case may be.

(g) *Opinion and 10b-5 Statement of Counsel for the Company.* Wilmer Cutler Pickering Hale and Dorr LLP, counsel for the Company, shall have furnished to the Representatives, at the request of the Company, their written opinion and 10b-5 statement, dated the Closing Date or the Additional Closing Date, as the case may be, and addressed to the Underwriters, in form and substance reasonably satisfactory to the Representatives, to the effect set forth in Annex A-1 hereto.

(h) *Opinion of Intellectual Property Counsel for the Company.* Seth Fidel, Esq., special counsel for the Company with respect to intellectual property matters, shall have

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furnished to the Representatives, at the request of the Company, their written opinion, dated the Closing Date or the Additional Closing Date, as the case may be, and addressed to the Underwriters, in form and substance reasonably satisfactory to the Representatives, to the effect set forth in Annex A-2 hereto.

(i) *Opinion of Regulatory Counsel for the Company.* Hyman, Phelps & McNamara, P.C., special counsel for the Company with respect to regulatory matters shall have furnished to the Representatives, at the request of the Company, their written opinion, dated the Closing Date or the Additional Closing Date, as the case may be, and addressed to the Underwriters, in form and substance reasonably satisfactory to the Representatives, to the effect set forth in Annex A-3 hereto.

(j) *Opinion and 10b-5 Statement of Counsel for the Underwriters.* The Representatives shall have received on and as of the Closing Date or the Additional Closing Date, as the case may be, an opinion and 10b-5 statement of Davis Polk & Wardwell LLP, counsel for the Underwriters, with respect to such matters as the Representatives may reasonably request, and such counsel shall have received such documents and information as they may reasonably request to enable them to pass upon such matters.

(k) *No Legal Impediment to Issuance.* No action shall have been taken and no statute, rule, regulation or order shall have been enacted, adopted or issued by any federal, state or foreign governmental or regulatory authority that would, as of the Closing Date or the Additional Closing Date, as the case may be, prevent the issuance or sale of the Shares; and no injunction or order of any federal, state or foreign court shall have been issued that would, as of the Closing Date or the Additional Closing Date, as the case may be, prevent the issuance or sale of the Shares.

(l) *Good Standing.* The Representatives shall have received on and as of the Closing Date or the Additional Closing Date, as the case may be, satisfactory evidence of the good standing of the Company and its subsidiaries in their respective jurisdictions of organization and their good standing as foreign entities in such other jurisdictions as the Representatives may reasonably request, in each case in writing or any standard form of telecommunication from the appropriate governmental authorities of such jurisdictions.

(m) *Exchange Listing.* The Shares to be delivered on the Closing Date or Additional Closing Date, as the case may be, shall have been approved for listing on the Nasdaq Market, subject to official notice of issuance.

(n) *Lock-up Agreements.* The "lock-up" agreements, each substantially in the form of Exhibit A hereto, between you and certain executive officers and directors of the Company relating to sales and certain other dispositions of shares of Stock or certain other securities, delivered to you on or before the date hereof, shall be in full force and effect on the Closing Date or Additional Closing Date, as the case may be.

(o) *CFO Certificate.* On the date of this Agreement and on the Closing Date or the Additional Closing Date, as the case may be, William A. Sullivan, Chief Financial Officer and Treasurer, shall have furnished to the Representatives, a Chief Financial Officer's Certificate, dated the respective dates of delivery thereof, in form and substance reasonably satisfactory to the Representatives.

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(p) *Additional Documents.* On or prior to the Closing Date or the Additional Closing Date, as the case may be, the Company shall have furnished to the Representatives such further certificates and documents as the Representatives may reasonably request.

All opinions, letters, certificates and evidence mentioned above or elsewhere in this Agreement shall be deemed to be in compliance with the provisions hereof only if they are in form and substance reasonably satisfactory to counsel for the Underwriters.

7. Indemnification and Contribution.

(a) *Indemnification of the Underwriters.* (1) The Company agrees to indemnify and hold harmless each Underwriter, its affiliates, directors and officers and each person, if any, who controls such Underwriter within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act, from and against any and all losses, claims, damages and liabilities (including, without limitation, reasonable legal fees and other reasonable expenses incurred in connection with any suit, action or proceeding or any claim asserted, as such fees and expenses are incurred), joint or several, that arise out of, or are based upon, (i) any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement or caused by any omission or alleged omission to state therein a material fact required to be stated therein or necessary in order to make the statements therein, not misleading, (ii) or any untrue statement or alleged untrue statement of a material fact contained in the Prospectus (or any amendment or supplement thereto), any Issuer Free Writing Prospectus, any "issuer information" filed or required to be filed pursuant to Rule 433(d) under the Securities Act, any Written Testing-the-Waters Communication or any Pricing Disclosure Package (including any Pricing Disclosure Package that has subsequently been amended), or caused by any omission or alleged omission to state therein a material fact necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading, in each case except insofar as such losses, claims, damages or liabilities arise out of, or are based upon, any untrue statement or omission or alleged untrue statement or omission made in reliance upon and in conformity with any information relating to any Underwriter furnished to the Company in writing by such Underwriter through the Representatives expressly for use therein, it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in subsection (b) below.

(b) *Indemnification of the Company.* Each Underwriter agrees, severally and not jointly, to indemnify and hold harmless the Company, its directors, its officers who signed the Registration Statement and each person, if any, who controls the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act to the same extent as the indemnity set forth in paragraph (a) above, but only with respect to any losses, claims, damages or liabilities that arise out of, or are based upon, any untrue statement or omission or alleged untrue statement or omission made in reliance upon and in conformity with any information relating to such Underwriter furnished to the Company in writing by such Underwriter through the Representatives expressly for use in the Registration Statement, the Prospectus (or any amendment or supplement thereto), any Issuer Free Writing Prospectus, any Written Testing-the-Waters Communication or any Pricing Disclosure Package, it being understood and agreed upon that the only such information furnished by any Underwriter consists of the following information in the Prospectus furnished on behalf of each Underwriter: the concession and reallowance figures appearing in the third paragraph, the information regarding electronic and internet distribution appearing in the seventh paragraph and the information relating to stabilizing transactions contained in the thirteenth, fourteenth and sixteenth paragraphs in each case under the caption "Underwriting".

(c) *Notice and Procedures.* If any suit, action, proceeding (including any governmental or regulatory investigation), claim or demand shall be brought or asserted against any person in respect of

which indemnification may be sought pursuant to either paragraph (a) or (b) above, such person (the "Indemnified Person") shall promptly notify the person against whom such indemnification may be sought (the "Indemnifying Person") in writing; provided that the failure to notify the Indemnifying Person shall not relieve it from any liability that it may have under paragraph (a) or (b) above except to the extent that it has been materially prejudiced (through the forfeiture of substantive rights or defenses) by such failure; and provided, further, that the failure to notify the Indemnifying Person shall not relieve it from any liability that it may have to an Indemnified Person otherwise than under paragraph (a) or (b) above. If any such proceeding shall be brought or asserted against an Indemnified Person and it shall have notified the Indemnifying Person thereof, the Indemnifying Person shall retain counsel reasonably satisfactory to the Indemnified Person (who shall not, without the consent of the Indemnified Person, be counsel to the Indemnifying Person) to represent the Indemnified Person in such proceeding and shall pay the reasonable fees and expenses of such counsel related to such proceeding, as incurred. In any such proceeding, any Indemnified Person shall have the right to retain its own counsel, but the fees and expenses of such counsel shall be at the expense of such Indemnified Person unless (i) the Indemnifying Person and the Indemnified Person shall have mutually agreed to the contrary; (ii) the Indemnifying Person has failed within a reasonable time to retain counsel reasonably satisfactory to the Indemnified Person; (iii) the Indemnified Person shall have reasonably concluded that there may be legal defenses available to it that are different from or in addition to those available to the Indemnifying Person; or (iv) the named parties in any such proceeding (including any impleaded parties) include both the Indemnifying Person and the Indemnified Person and representation of both parties by the same counsel would be inappropriate due to actual or potential differing interest between them. It is understood and agreed that the Indemnifying Person shall not, in connection with any proceeding or related proceedings in the same jurisdiction, be liable for the fees and expenses of more than one separate firm (in addition to any local counsel) for all Indemnified Persons, and that all such reasonable fees and expenses shall be paid or reimbursed as they are incurred. Any such separate firm for any Underwriter, its affiliates, directors and officers and any control persons of such Underwriter shall be designated in writing by J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated and any such separate firm for the Company, its directors, its officers who signed the Registration Statement and any control persons of the Company shall be designated in writing by the Company. The Indemnifying Person shall not be liable for any settlement of any proceeding effected without its written consent, but if settled with such consent or if there be a final judgment for the plaintiff, the Indemnifying Person agrees to indemnify each Indemnified Person from and against any loss or liability by reason of such settlement or judgment. Notwithstanding the foregoing sentence, if at any time an Indemnified Person shall have requested that an Indemnifying Person reimburse the Indemnified Person for fees and expenses of counsel as contemplated by this paragraph, the Indemnifying Person shall be liable for any settlement of any proceeding effected without its written consent if (i) such settlement is entered into (A) more than 60 days after receipt by the Indemnifying Person of such request and (B) more than 30 days after receipt by the Indemnifying Person of the proposed terms of such settlement and (ii) the Indemnifying Person shall not have reimbursed the Indemnified Person in accordance with such request prior to the date of such settlement. No Indemnifying Person shall, without the written consent of the Indemnified Person, effect any settlement of any pending or threatened proceeding in respect of which any Indemnified Person is or could have been a party and indemnification could have been sought hereunder by such Indemnified Person, unless such settlement (x) includes an unconditional release of such Indemnified Person, in form and substance reasonably satisfactory to such Indemnified Person, from all liability on claims that are the subject matter of such proceeding and (y) does not include any statement as to or any admission of fault, culpability or a failure to act by or on behalf of any Indemnified Person.

(d) *Contribution.* If the indemnification provided for in paragraphs (a) and (b) above is unavailable to an Indemnified Person or insufficient in respect of any losses, claims, damages or liabilities referred to therein, then each Indemnifying Person under such paragraph, in lieu of indemnifying such Indemnified Person thereunder, shall contribute to the amount paid or payable by such Indemnified



Person as a result of such losses, claims, damages or liabilities (i) in such proportion as is appropriate to reflect the relative benefits received by the Company, on the one hand, and the Underwriters on the other, from the offering of the Shares, or (ii) if the allocation provided by clause (i) is not permitted by applicable law, in such proportion as is appropriate to reflect not only the relative benefits referred to in clause (i) but also the relative fault of the Company, on the one hand, and the Underwriters on the other, in connection with the statements or omissions that resulted in such losses, claims, damages or liabilities, as well as any other relevant equitable considerations. The relative benefits received by the Company, on the one hand, and the Underwriters on the other, shall be deemed to be in the same respective proportions as the net proceeds (before deducting expenses) received by the Company from the sale of the Shares and the total underwriting discounts and commissions received by the Underwriters in connection therewith, in each case as set forth in the table on the cover of the Prospectus, bear to the aggregate offering price of the Shares. The relative fault of the Company, on the one hand, and the Underwriters on the other, shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information supplied by the Company or by the Underwriters and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission.

(e) *Limitation on Liability.* The Company and the Underwriters agree that it would not be just and equitable if contribution pursuant to this Section 7 were determined by pro rata allocation (even if the Underwriters were treated as one entity for such purpose) or by any other method of allocation that does not take account of the equitable considerations referred to in paragraph (d) above. The amount paid or payable by an Indemnified Person as a result of the losses, claims, damages and liabilities referred to in paragraph (d) above shall be deemed to include, subject to the limitations set forth above, any reasonable legal or other reasonable expenses incurred by such Indemnified Person in connection with any such action or claim. Notwithstanding the provisions of this Section 7, in no event shall an Underwriter be required to contribute any amount in excess of the amount by which the total underwriting discounts and commissions received by such Underwriter with respect to the offering of the Shares exceeds the amount of any damages that such Underwriter has otherwise been required to pay by reason of such untrue or alleged untrue statement or omission or alleged omission. No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. The Underwriters' obligations to contribute pursuant to this Section 7 are several in proportion to their respective purchase obligations hereunder and not joint.

(f) *Non-Exclusive Remedies.* The remedies provided for in this Section 7 are not exclusive and shall not limit any rights or remedies which may otherwise be available to any Indemnified Person at law or in equity.

8. *Effectiveness of Agreement.* This Agreement shall become effective upon the execution and delivery hereof by the parties hereto.

9. *Termination.* This Agreement may be terminated in the absolute discretion of the Representatives, by notice to the Company, if after the execution and delivery of this Agreement and prior to the Closing Date or, in the case of the Option Shares, prior to the Additional Closing Date (i) trading generally shall have been suspended or materially limited on or by any of the New York Stock Exchange, NYSE Amex, the Nasdaq Market, the Chicago Board Options Exchange, the Chicago Mercantile Exchange or the Chicago Board of Trade; (ii) trading of any securities issued or guaranteed by the Company shall have been suspended on any exchange or in any over-the-counter market; (iii) a general moratorium on commercial banking activities shall have been declared by federal or New York State authorities; or (iv) there shall have occurred any outbreak or escalation of hostilities or any change in financial markets or any calamity or crisis, either within or outside the United States, that, in the judgment

of the Representatives, is material and adverse and makes it impracticable or inadvisable to proceed with the offering, sale or delivery of the Shares on the Closing Date or the Additional Closing Date, as the case may be, on the terms and in the manner contemplated by this Agreement, the Pricing Disclosure Package and the Prospectus.

10. *Defaulting Underwriter.*

(a) If, on the Closing Date or the Additional Closing Date, as the case may be, any Underwriter defaults on its obligation to purchase the Shares that it has agreed to purchase hereunder on such date, the non-defaulting Underwriters may in their discretion arrange for the purchase of such Shares by other persons satisfactory to the Company on the terms contained in this Agreement. If, within 36 hours after any such default by any Underwriter, the non-defaulting Underwriters do not arrange for the purchase of such Shares, then the Company shall be entitled to a further period of 36 hours within which to procure other persons satisfactory to the non-defaulting Underwriters to purchase such Shares on such terms. If other persons become obligated or agree to purchase the Shares of a defaulting Underwriter, either the non-defaulting Underwriters or the Company may postpone the Closing Date or the Additional Closing Date, as the case may be, for up to five full business days in order to effect any changes that in the opinion of counsel for the Company or counsel for the Underwriters may be necessary in the Registration Statement and the Prospectus or in any other document or arrangement, and the Company agrees to promptly prepare any amendment or supplement to the Registration Statement and the Prospectus that effects any such changes. As used in this Agreement, the term "Underwriter" includes, for all purposes of this Agreement unless the context otherwise requires, any person not listed in Schedule 1 hereto that, pursuant to this Section 10, purchases Shares that a defaulting Underwriter agreed but failed to purchase.

(b) If, after giving effect to any arrangements for the purchase of the Shares of a defaulting Underwriter or Underwriters by the non-defaulting Underwriters and the Company as provided in paragraph (a) above, the aggregate number of Shares that remain unpurchased on the Closing Date or the Additional Closing Date, as the case may be, does not exceed one-eleventh of the aggregate number of Shares to be purchased on such date, then the Company shall have the right to require each non-defaulting Underwriter to purchase the number of Shares that such Underwriter agreed to purchase hereunder on such date plus such Underwriter's pro rata share (based on the number of Shares that such Underwriter agreed to purchase on such date) of the Shares of such defaulting Underwriter or Underwriters for which such arrangements have not been made.

(c) If, after giving effect to any arrangements for the purchase of the Shares of a defaulting Underwriter or Underwriters by the non-defaulting Underwriters and the Company as provided in paragraph (a) above, the aggregate number of Shares that remain unpurchased on the Closing Date or the Additional Closing Date, as the case may be, exceeds one-eleventh of the aggregate amount of Shares to be purchased on such date, or if the Company shall not exercise the right described in paragraph (b) above, then this Agreement or, with respect to any Additional Closing Date, the obligation of the Underwriters to purchase Shares on the Additional Closing Date shall terminate without liability on the part of the non-defaulting Underwriters. Any termination of this Agreement pursuant to this Section 10 shall be without liability on the part of the Company, except that the provisions of Section 7 hereof shall not terminate and shall remain in effect.

11. Payment of Expenses.

(a) Whether or not the transactions contemplated by this Agreement are consummated or this Agreement is terminated, the Company will pay or cause to be paid all costs and expenses incident to the performance of its obligations hereunder, including without limitation, (i) the costs incident to the authorization, issuance, sale, preparation and delivery of the Shares and any taxes payable in that connection; (ii) the costs incident to the preparation, printing and filing under the Securities Act of the Registration Statement, the Preliminary Prospectus, any Issuer Free Writing Prospectus, any Pricing Disclosure Package and the Prospectus (including all exhibits, amendments and supplements thereto) and the distribution thereof; (iii) the costs of reproducing and distributing this Agreement, (iv) the fees and expenses of the Company's counsel and independent accountants; (v) the reasonable fees and expenses incurred in connection with the registration or qualification of the Shares under the state or foreign securities or blue sky laws of such jurisdictions as the Representatives may designate and the preparation, printing and distribution of a Blue Sky Memorandum (including the related fees and expenses of counsel for the Underwriters); (vi) the cost of preparing stock certificates; (vii) the costs and charges of any transfer agent and any registrar; (viii) all expenses and application fees incurred in connection with any filing with, and clearance of the offering by, FINRA; (ix) all expenses incurred by the Company in connection with any "road show" presentation to potential investors; and (x) all expenses and application fees related to the listing of the Shares on the Nasdaq Market.

(b) If (i) this Agreement is terminated pursuant to clause (i) or (ii) of Section 9, (ii) the Company for any reason fails to tender the Shares for delivery to the Underwriters or (iii) the Underwriters decline to purchase the Shares for any reason permitted under this Agreement (other than following termination of this Agreement pursuant to clause (iii) or (iv) of Section 9), the Company agrees to reimburse the Underwriters for all out-of-pocket costs and expenses (including the fees and expenses of their counsel) reasonably incurred by the Underwriters in connection with this Agreement and the offering contemplated hereby.

12. Persons Entitled to Benefit of Agreement. This Agreement shall inure to the benefit of and be binding upon the parties hereto and their respective successors and the officers and directors and any controlling persons referred to in Section 7 hereof. Nothing in this Agreement is intended or shall be construed to give any other person any legal or equitable right, remedy or claim under or in respect of this Agreement or any provision contained herein. No purchaser of Shares from any Underwriter shall be deemed to be a successor merely by reason of such purchase.

13. Survival. The respective indemnities, rights of contribution, representations, warranties and agreements of the Company and the Underwriters contained in this Agreement or made by or on behalf of the Company or the Underwriters pursuant to this Agreement or any certificate delivered pursuant hereto shall survive the delivery of and payment for the Shares and shall remain in full force and effect, regardless of any termination of this Agreement or any investigation made by or on behalf of the Company or the Underwriters.

14. Certain Defined Terms. For purposes of this Agreement, (a) except where otherwise expressly provided, the term "affiliate" has the meaning set forth in Rule 405 under the Securities Act; (b) the term "business day" means any day other than a day on which banks are permitted or required to be closed in New York City; and (c) the term "subsidiary" has the meaning set forth in Rule 405 under the Securities Act.

15. Miscellaneous.

(a) *Authority of J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated.* Any action by the Underwriters hereunder may be taken by J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated on behalf of the Underwriters, and any such action taken by J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated shall be binding upon the Underwriters.

(b) *Notices.* All notices and other communications hereunder shall be in writing and shall be deemed to have been duly given if mailed or transmitted and confirmed by any standard form of telecommunication. Notices to the Underwriters shall be given to the Representatives c/o J.P. Morgan Securities LLC, 383 Madison Avenue, New York, New York 10179 (fax: (212) 622-8358), Attention: Equity Syndicate Desk; and Merrill Lynch, Pierce, Fenner & Smith Incorporated, One Bryant Park, New York, New York 10036 (fax: (646) 855-3073), Attention: Syndicate Department with a copy to ECM Legal. Notices to the Company shall be given to it at Merrimack Pharmaceuticals, Inc., One Kendall Square, Building 700, 2nd Floor, Cambridge, Massachusetts 02139, (fax: (617) 812-8122); Attention: Corporate Counsel.

(c) *Governing Law.* This Agreement and any claim, controversy or dispute arising under or related to this Agreement shall be governed by and construed in accordance with the laws of the State of New York applicable to agreements made and to be performed in such state.

(d) *Counterparts.* This Agreement may be signed in counterparts (which may include counterparts delivered by any standard form of telecommunication), each of which shall be an original and all of which together shall constitute one and the same instrument.

(e) *Amendments or Waivers.* No amendment or waiver of any provision of this Agreement, nor any consent or approval to any departure therefrom, shall in any event be effective unless the same shall be in writing and signed by the parties hereto.

(f) *Headings.* The headings herein are included for convenience of reference only and are not intended to be part of, or to affect the meaning or interpretation of, this Agreement.

If the foregoing is in accordance with your understanding, please indicate your acceptance of this Agreement by signing in the space provided below.

Very truly yours,

MERRIMACK PHARMACEUTICALS, INC.

By: /s/ Robert Mulroy  
Name: Robert Mulroy  
Title: President & CEO

Accepted: July 11, 2013

J.P. MORGAN SECURITIES LLC  
MERRILL LYNCH, PIERCE, FENNER & SMITH  
INCORPORATED

For themselves and on behalf of the  
several Underwriters listed  
in Schedule 1 hereto.

J.P. MORGAN SECURITIES LLC

By: /s/ Michael Gaito  
Name: Michael Gaito  
Title: Managing Director

MERRILL LYNCH, PIERCE, FENNER & SMITH  
INCORPORATED

By: /s/ Sumit Khedekar  
Name: Sumit Khedekar  
Title: Managing Director

Schedule 1

Underwriter	Number of Underwritten Shares
J. P. Morgan Securities LLC	2,250,000
Merrill Lynch, Pierce, Fenner & Smith Incorporated	1,750,000
Cowen and Company, LLC	550,000
Oppenheimer & Co. Inc.	150,000
Guggenheim Securities, LLC	150,000
Brean Capital, LLC	150,000
Total	5,000,000

Annex A-1

Form of Opinion of Counsel for the Company

Annex A-2

Form of Opinion for Company Intellectual Property Counsel

Annex A-3

FORM OF COMPANY COUNSEL REGULATORY OPINION

a. **Pricing Disclosure Package**

Term sheet, substantially in the form attached as Annex C hereto.

Annex C

MERRIMACK PHARMACEUTICALS, INC.

Pricing Term Sheet

**PRICING TERM SHEET**  
Dated as of July 11, 2013

**Issuer Free Writing Prospectus**  
**Filed Pursuant to Rule 433**  
**Registration Statement No. 333-186369**  
**Relating to the**  
**Preliminary Prospectus Supplements dated July 10, 2013 to the**  
**Prospectus dated February 8, 2013**

**Merrimack Pharmaceuticals, Inc.**  
**Offering of**  
**\$125,000,000 aggregate principal amount of**  
**4.50% Convertible Senior Notes due 2020**  
**(the “Convertible Notes Offering”)**

**and**

**Offering of**  
**5,000,000 shares of Common Stock, par value \$0.01 per share**  
**(the “Common Stock Offering”)**

*This pricing term sheet relates to the Convertible Notes Offering and Common Stock Offering described below and should be read together with (i) the preliminary prospectus supplement dated July 10, 2013 (including the documents incorporated by reference therein and the base prospectus in respect thereof) relating to the Convertible Notes Offering (the “Convertible Notes Preliminary Prospectus Supplement”) and (ii) the preliminary prospectus supplement dated July 10, 2013 (including the documents incorporated by reference therein and the base prospectus in respect thereof) relating to the Common Stock Offering (the “Common Stock Preliminary Prospectus Supplement,” and, together with the Convertible Notes Preliminary Prospectus Supplement, the “Preliminary Prospectus Supplements”). The information in this term sheet supersedes the information in each Preliminary Prospectus Supplement to the extent that it is inconsistent therewith. Terms used but not defined herein have the meanings ascribed to them in the relevant Preliminary Prospectus Supplement.*

**Convertible Notes Offering and Common Stock Offering**

General:	The Convertible Notes Offering has been upsized from the previously announced size of \$75,000,000 aggregate principal amount of the Issuer’s Notes (not including any exercise by the underwriters for the Convertible Notes Offering of their over-allotment option). See “Convertible Notes Offering” below. The Common Stock Offering has been downsized from the previously announced size of \$50,000,000 of the Issuer’s Common Stock (not including any exercise by the underwriters for the Common Stock Offering of their option to purchase additional shares). See “Common Stock Offering” below.
Issuer:	Merrimack Pharmaceuticals, Inc.
Common Stock:	Common stock of the Issuer, par value \$0.01 per share (NASDAQ: MACK)
Trade Date:	July 12, 2013
Settlement Date:	July 17, 2013
Use of Proceeds:	The Issuer estimates that the net proceeds from the Convertible Notes Offering, after deducting underwriting discounts and commissions and estimated offering expenses payable by the Issuer, will be approximately \$120.6 million (or approximately \$138.8 million if the underwriters for the Convertible Notes Offering exercise in full their over-allotment option).
	The Issuer estimates that the net proceeds from the Common Stock Offering,

after deducting underwriting discounts and commissions and estimated offering expenses payable by the Issuer, will be

approximately \$23.3 million (or approximately \$26.8 million if the underwriters for the Common Stock Offering exercise in full their option to purchase additional shares).

The Issuer expects to use the net proceeds from the Convertible Notes Offering and the Common Stock Offering to complete the clinical development of, seek marketing approval for and fund preapproval commercial efforts for MM-398 for the treatment of patients with metastatic pancreatic cancer whose cancer has progressed on treatment with the chemotherapy drug gemcitabine, to partially fund the clinical development of the Issuer's other clinical stage product candidates (including MM-398 for indications other than pancreatic cancer), to fund pre-clinical and research and development efforts and for other general corporate purposes.

### **Convertible Notes Offering**

Notes:	4.50% Convertible Senior Notes due 2020
Offering Size:	\$125,000,000 (or \$143,750,000 if the underwriters for the Convertible Notes Offering exercise their over-allotment option in full)
Maturity Date:	July 15, 2020, unless earlier repurchased or converted
Public Offering Price:	100% of principal amount, <i>plus</i> accrued interest, if any, from the Settlement Date
Underwriting Discounts and Commissions:	3.25% of principal amount
Interest Rate:	4.50% per annum accruing from the Settlement Date, payable semi-annually in arrears on January 15 and July 15 of each year, beginning on January 15, 2014
Conversion Premium:	25% above the Public Offering Price for the Common Stock Offering
Initial Conversion Rate:	160.0000 shares of Common Stock per \$1,000 principal amount of Notes
Initial Conversion Price:	\$6.25 per share of Common Stock
Increase in Conversion Rate Upon Conversion Upon a Make-Whole Fundamental Change:	The following table sets forth the number of additional shares by which the conversion rate will be increased per \$1,000 principal amount of Notes for each stock price and effective date set forth below.

Effective date	Stock price											
	\$5.00	\$5.50	\$6.25	\$6.75	\$7.50	\$10.00	\$12.50	\$15.00	\$17.50	\$20.00	\$22.50	\$25.00
July 17, 2013	40.0000	34.4551	27.5747	24.0824	19.9587	11.6378	7.2779	4.6677	2.9915	1.8758	1.1015	0.5984
July 15, 2014	40.0000	33.8735	26.7581	23.2095	19.0833	10.9868	6.8537	4.3975	2.8197	1.7666	1.0544	0.5760
July 15, 2015	40.0000	33.0858	25.6486	22.0228	17.8924	10.1041	6.2817	4.0353	2.5905	1.6214	0.9629	0.5192
July 15, 2016	40.0000	32.1509	24.2259	20.4738	16.3207	8.9376	5.5330	3.5662	2.2974	1.4391	0.8520	0.4532
July 15, 2017	40.0000	30.7585	22.1770	18.2681	14.1129	7.3576	4.5384	2.9466	1.9101	1.1976	0.7043	0.3654
July 15, 2018	40.0000	28.6175	19.1323	15.0483	10.9775	5.2828	3.2759	2.1635	1.4190	0.8918	0.5189	0.2570
July 15, 2019	40.0000	25.2840	14.3154	10.0714	6.3924	2.7172	1.7589	1.1964	0.7992	0.5053	0.2892	0.1278
July 15, 2020	40.0000	21.8181	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

The exact stock prices and effective dates may not be set forth in the table above, in which case:

- if the stock price is between two stock prices in the table or the effective date is between two effective dates in the table, the number of additional shares will be determined by a straight-line interpolation between the

number of additional shares set forth for the higher and lower stock prices and the earlier and later effective dates, as applicable, based on a 365-day year;

- if the stock price is greater than \$25.00 per share (subject to adjustment in the same manner as the stock prices set forth in the column headings of the table above as described under "Description of Notes—Conversion Rights—Conversion Rate Adjustments" in the Convertible Notes Preliminary Prospectus Supplement), no additional shares will be added to the conversion rate; and
- if the stock price is less than \$5.00 per share (subject to adjustment in the same manner as the stock prices set forth in the column headings of the table above as described under "Description of Notes—Conversion Rights—Conversion Rate Adjustments" in the Convertible Notes Preliminary Prospectus Supplement), no additional shares will be added to the conversion rate.

Notwithstanding the foregoing, in no event will the conversion rate per \$1,000 principal amount of Notes exceed 200.0000, subject to adjustment in the same manner as the conversion rate as set forth under "Description of Notes—Conversion Rights—Conversion Rate Adjustments" in the Convertible Notes Preliminary Prospectus Supplement.

CUSIP/ISIN: 590328AA8 / US590328AA86

Joint Book-Running Managers: J.P. Morgan Securities LLC  
Merrill Lynch, Pierce, Fenner & Smith  
Incorporated

Co-Manager: Cowen and Company, LLC

### **Common Stock Offering**

Shares Offered:	5,000,000 shares of Common Stock (or 5,750,000 shares if the underwriters for the Common Stock Offering exercise their option to purchase 750,000 additional shares in full)
Public Offering Price:	\$5.00 per share of Common Stock \$25,000,000 in the aggregate (or \$28,750,000 in the aggregate if the underwriters for the Common Stock Offering exercise their option to purchase 750,000 additional shares in full)
Shares of Common Stock Outstanding Following the Common Stock Offering:	101,428,154 shares (or 102,178,154 shares if the underwriters for the Common Stock Offering exercise their option to purchase 750,000 additional shares in full)
Underwriting Discount:	\$0.30 per share of Common Stock
Joint Book-Running Managers:	J.P. Morgan Securities LLC Merrill Lynch, Pierce, Fenner & Smith Incorporated
Lead Manager:	Cowen and Company, LLC
Co-Managers:	Oppenheimer & Co. Inc. Guggenheim Securities, LLC Brean Capital, LLC

#### As Adjusted Financial Data:

After giving effect to the Convertible Notes Offering and the Common Stock Offering, as of March 31, 2013, the Issuer's as adjusted cash and cash equivalents and marketable securities and the Issuer's capitalization would have been as follows:

<b>(Unaudited, in thousands)</b>	
Cash and cash equivalents	\$ 172,373
Marketable securities	58,252
Long-term debt, net	
Loans payable	\$ 34,076
4.50% convertible senior notes due 2020	125,000
Total long-term debt	159,076
Non-controlling (deficit) interest	(73)
Stockholders' deficit:	
Preferred stock	—
Common stock	1,009
Additional paid-in capital	460,513
Accumulated other comprehensive loss	(20)
Accumulated deficit	(470,269)
Total stockholders' deficit	(8,767)
Total capitalization	\$ 150,236

After giving effect to the Common Stock Offering (but not taking into account the Convertible Notes Offering), the Issuer's net tangible book value at March 31, 2013 would have been \$(25.9) million, or \$(0.26) per share. This represents an immediate increase in net tangible book value of \$0.21 per share to existing stockholders and an immediate dilution of \$5.26 per share to investors in the Common Stock Offering.

The Issuer has filed a registration statement (including a prospectus dated February 8, 2013 and the Preliminary Prospectus Supplements dated July 10, 2013) with the Securities and Exchange Commission, or SEC, for the Convertible Notes Offering and the Common Stock Offering, to which this communication relates. Before you invest, you should read the applicable Preliminary Prospectus Supplement, the accompanying prospectus and the other documents the Issuer has filed with the SEC for more complete information about the Issuer and the Convertible Notes Offering and the Common Stock Offering. You may get these documents for free by visiting EDGAR on the SEC web site at [www.sec.gov](http://www.sec.gov). Alternatively, the Issuer or any underwriter or dealer participating in the Convertible Notes Offering or the Common Stock Offering will arrange to send you the prospectus supplement and accompanying prospectus if you request them by contacting J.P. Morgan Securities LLC, Attn: Broadridge Financial Solutions, 1155 Long Island Avenue, Edgewood, New York 11717, 866-803-9204; or BofA Merrill Lynch, Attn: Prospectus Department, 222 Broadway, New York, NY 10038, 866-500-5408, or email: [dg.prospectus\\_requests@baml.com](mailto:dg.prospectus_requests@baml.com).

ANY DISCLAIMERS OR OTHER NOTICES THAT MAY APPEAR BELOW ARE NOT APPLICABLE TO THIS COMMUNICATION AND SHOULD BE DISREGARDED. SUCH DISCLAIMERS OR OTHER NOTICES WERE AUTOMATICALLY GENERATED AS A RESULT OF THIS COMMUNICATION BEING SENT VIA BLOOMBERG OR ANOTHER EMAIL SYSTEM.

FORM OF LOCK-UP AGREEMENT

, 2013

J.P. MORGAN SECURITIES LLC  
MERRILL LYNCH, PIERCE, FENNER & SMITH  
INCORPORATED

As Representatives of  
the several Underwriters listed in  
the Underwriting Agreements  
referred to below

c/o J.P. Morgan Securities LLC  
383 Madison Avenue  
New York, NY 10179

c/o Merrill Lynch, Pierce, Fenner & Smith  
Incorporated  
One Bryant Park  
New York, New York 10036

Re: Merrimack Pharmaceuticals, Inc. — Public Offering

Ladies and Gentlemen:

The undersigned understands that (i) J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated (together, the “Common Offering Representatives”) propose to enter into an Underwriting Agreement (the “Common Stock Underwriting Agreement”) with Merrimack Pharmaceuticals, Inc., a Delaware corporation (the “Company”), providing for the public offering (the “Public Offering of Common Stock”) by the several underwriters to be named therein, including the Common Offering Representatives (the “Common Stock Underwriters”), of shares of common stock, par value \$0.01 per share, of the Company (the “Common Stock”) and (ii) J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated (together, the “Convertible Offering Representatives” and, in their capacity as both Common Offering Representatives and Convertible Offering Representatives, the “Representatives”) propose to enter into an Underwriting Agreement (the “Convertible Securities Underwriting Agreement” and together with the Common Stock Underwriting Agreement, the “Underwriting Agreements”) with the Company, providing for the public offering (the “Public Offering of Convertible Securities” and, together with the Public Offering of Common Stock, the “Public Offerings”) by the several underwriters to be named therein, including the Convertible Offering Representatives (together with the Common Stock Underwriters, the “Underwriters”), of convertible senior notes of the Company (the “Convertible Securities”).

In consideration of the Underwriters’ agreement to participate in the Public Offerings and to continue their efforts in connection with the Public Offerings, and for other good and valuable consideration, receipt of which is hereby acknowledged, the undersigned hereby agrees that, without the prior written

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consent of J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated on behalf of the Underwriters, the undersigned will not, (i) during the period ending 90 days after the date of the final prospectus supplement relating to the Public Offering of Common Stock (the “Common Stock Restricted Period”) and (ii) during the period ending 90 days after the date of the final prospectus supplement relating to the Public Offering of Convertible Securities (the “Convertible Securities Restricted Period” and, together with the Common Stock Restricted Period, the “Restricted Period”), (1) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock or any securities convertible into or exercisable or exchangeable for Common Stock (including without limitation, Common Stock or such other securities which may be deemed to be beneficially owned by the undersigned in accordance with the rules and regulations of the Securities and Exchange Commission and securities which may be issued upon exercise of a stock option or warrant), or publicly disclose the intention to make any offer, sale, pledge or disposition, (2) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of the Common Stock or such other securities, whether any such transaction described in clause (1) or (2) above is to be settled by delivery of Common Stock or such other securities, in cash or otherwise or (3) make any demand for or exercise any right with respect to the registration of any shares of Common Stock or any security convertible into or exercisable or exchangeable for Common Stock, in each case other than (A) the conversion of the Convertible Securities into shares of Common Stock, (B) transfers of shares of Common Stock or such other securities as a bona fide gift or gifts, (C) transfers or dispositions of shares of Common Stock or such other securities to any trust for the direct or indirect benefit of the undersigned or the immediate family of the undersigned in a transaction not involving a disposition for value, (D) transfers or dispositions of shares of Common Stock or such other securities to any corporation, partnership, limited liability company or other entity all of the beneficial ownership interests of which are held by the undersigned or the immediate family of the undersigned in a transaction not involving a disposition for value, (E) transfers or dispositions of shares of Common Stock or such other securities by will, other testamentary document or intestate succession to the legal representative, heir, beneficiary or a member of the immediate family of the undersigned, and (F) distributions of shares of Common Stock or such other securities to partners, members or stockholders of the undersigned; provided that in the case of any transfer, disposition or distribution pursuant to clause (B), (C), (D), (E) or (F), each transferee, donee or distributee shall execute and deliver to the Representatives a lock-up letter in the form of this paragraph; and provided, further, that in the case of any transfer, disposition or distribution pursuant to clause (B), (C), (D) or (F), no filing by any party (donor, donee, transferor or transferee) under the Securities Exchange Act of 1934, as amended (the “Exchange Act”), or other public announcement reporting a reduction in the beneficial ownership of Common Stock held by the undersigned shall be required or shall be made voluntarily in connection with such transfer, disposition or distribution (other than a filing on a Form 5 made after the expiration of the Restricted Period). For purposes of this Letter Agreement, “immediate family” shall mean any relationship by blood, marriage or adoption, not more remote than first cousin. Furthermore, notwithstanding the restrictions imposed by this Letter Agreement, the undersigned may, without the prior written consent of J.P. Morgan Securities LLC or Merrill Lynch, Pierce, Fenner & Smith Incorporated, (i) exercise an option to purchase shares of Common Stock granted under any stock incentive plan or stock purchase plan of the Company,

provided that the underlying shares of Common Stock shall continue to be subject to the restrictions on transfer set forth in this Letter Agreement, (ii) effect transactions pursuant to a trading plan established pursuant to Rule 10b5-1 under the Exchange Act in existence as of the date of this Letter Agreement, (iii) establish a trading plan pursuant to Rule 10b5-1 under the Exchange Act for the transfer of Common Stock, provided that such plan does not provide for any transfers of Common Stock during the Restricted Period and provided further that no filing with the United States Securities and Exchange Commission or other public announcement shall be required or voluntarily made by the undersigned or any other person in connection therewith and (iv) transfer or dispose of Convertible Securities or shares of Common Stock acquired on the open market following the Public Offerings, provided that no filing by any party under the Exchange Act or other public announcement reporting

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a reduction in the beneficial ownership of Common Stock held by the undersigned shall be required or shall be made voluntarily in connection with such transfer or disposition (other than a filing on Form 5 made after the expiration of the Restricted Period).

In furtherance of the foregoing, the Company, and any duly appointed transfer agent for the registration or transfer of the securities described herein, are hereby authorized to decline to make any transfer of securities if such transfer would constitute a violation or breach of this Letter Agreement.

The undersigned hereby represents and warrants that the undersigned has full power and authority to enter into this Letter Agreement. All authority herein conferred or agreed to be conferred and any obligations of the undersigned shall be binding upon the successors, assigns, heirs or personal representatives of the undersigned.

The undersigned understands that, if either J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated, on the one hand, or the Company, on the other hand, informs the other, prior to the execution of the Common Stock Underwriting Agreement, that it has determined not to proceed with the Public Offering of Common Stock, if the Common Stock Underwriting Agreement does not become effective by September 30, 2013, or if the Common Stock Underwriting Agreement (other than the provisions thereof which survive termination) shall terminate or be terminated prior to payment for and delivery of the securities to be sold thereunder, the undersigned shall be released from all obligations under this Letter Agreement with respect to the Common Stock Restricted Period, *provided*, that such release with respect to the Common Stock Restricted Period shall not affect the obligations imposed pursuant to this Letter Agreement with respect to the Convertible Securities Restricted Period. The undersigned understands that, if either J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated, on the one hand, or the Company, on the other hand, informs the other, prior to the execution of the Convertible Securities Underwriting Agreement, that it has determined not to proceed with the Public Offering of Convertible Securities, if the Convertible Securities Underwriting Agreement does not become effective by September 30, 2013, or if the Convertible Securities Underwriting Agreement (other than the provisions thereof which survive termination) shall terminate or be terminated prior to payment for and delivery of the securities to be sold thereunder, the undersigned shall be released from all obligations under this Letter Agreement with respect to the Convertible Securities Restricted Period, *provided*, that such release with respect to the Convertible Securities Restricted Period shall not affect the obligations imposed pursuant to this Letter Agreement with respect to the Common Stock Restricted Period. The undersigned understands that the Underwriters are entering into the Underwriting Agreements and proceeding with the Public Offerings in reliance upon this Letter Agreement.

This Letter Agreement and any claim, controversy or dispute arising under or related to this Letter Agreement shall be governed by and construed in accordance with the laws of the State of New York, without regard to the conflict of laws principles thereof.

Very truly yours,

[NAME OF STOCKHOLDER]

By: \_\_\_\_\_  
Name:  
Title:

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J.P. MORGAN SECURITIES LLC  
MERRILL LYNCH, PIERCE, FENNER & SMITH INCORPORATED

MERRIMACK PHARMACEUTICALS, INC.

4.50% Convertible Senior Notes due 2020

Underwriting Agreement

July 11, 2013

J.P. Morgan Securities LLC  
Merrill Lynch, Pierce, Fenner & Smith  
Incorporated  
As Representatives of the  
several Underwriters listed  
in Schedule 1 hereto

c/o J.P. Morgan Securities LLC  
383 Madison Avenue  
New York, New York 10179

c/o Merrill Lynch, Pierce, Fenner & Smith  
Incorporated  
One Bryant Park  
New York, New York 10036

Ladies and Gentlemen:

Merrimack Pharmaceuticals, Inc., a Delaware corporation (the “Company”), proposes to issue and sell to the several Underwriters listed in Schedule 1 hereto (the “Underwriters”), for whom you are acting as representatives (the “Representatives”), \$125,000,000 principal amount of its 4.50% Convertible Senior Notes due 2020 (the “Underwritten Securities”) and, at the option of the Underwriters, up to an additional \$18,750,000 principal amount of its 4.50% Convertible Senior Notes due 2020 (the “Option Securities”) if, and to the extent that, the Underwriters shall have determined to exercise the option to purchase such 4.50% Convertible Senior Notes due 2020 granted to the Underwriters in Section 2 hereof. The Underwritten Securities and the Option Securities are herein referred to as the “Securities.” The Securities will be convertible into cash, shares (the “Underlying Securities”) of common stock of the Company, par value \$0.01 per share (the “Common Stock”) or a combination thereof, at the Company’s election, subject to certain limitations as set forth in the Indenture (as defined below). The Securities will be issued pursuant to the provisions of an Indenture to be dated as of the Closing Date (as defined herein) (the “Base Indenture”) between the Company and Wells Fargo Bank, National Association, as trustee (the “Trustee”), as supplemented by a First Supplemental Indenture to be dated as of the Closing Date (as defined herein) between the Company and the Trustee (as so supplemented, the “Indenture”).

Concurrently with the issuance of the Securities, the Company is offering, in an offering registered under the Securities Act (as defined below), by means of a prospectus supplement and related prospectus,

and proposes to issue and sell to the several underwriters named in the underwriting agreement for such offering (the “Common Stock Underwriters”), an aggregate of 5,000,000 shares of its Common Stock (the “Firm Shares”). The Company also proposes to issue and sell to the several Common Stock Underwriters not more than an aggregate of 750,000 additional shares of its Common Stock (the “Additional Shares”), if, and to the extent that, the representatives of the Common Stock Underwriters shall have determined to exercise, on behalf of the Common Stock Underwriters, the right to purchase Additional Shares pursuant to the option granted to the Common Stock Underwriters. The Firm Shares and the Additional Shares are hereinafter collectively referred to as the “Shares.”

The Company hereby confirms its agreement with the several Underwriters concerning the purchase and sale of the Securities, as follows:

1. **Registration Statement.** The Company has prepared and filed with the Securities and Exchange Commission (the “Commission”) under the Securities Act of 1933, as amended, and the rules and regulations of the Commission thereunder (collectively, the “Securities Act”), a registration statement (File No. 333-186369), including a prospectus, relating to the Securities. Such registration statement, as amended at the time it became effective, including the information, if any, deemed pursuant to Rule 430A, 430B or 430C under the Securities Act to be part of the registration statement at the time of its effectiveness (“Rule 430 Information”), is referred to herein as the “Registration Statement”; and as used herein, the term “Preliminary Prospectus” means each prospectus included in such registration statement (and any amendments thereto) before effectiveness, any prospectus filed with the Commission pursuant to Rule 424(a) under the Securities Act and the prospectus included in the Registration Statement at the time of its effectiveness that omits Rule 430 Information, and the term “Prospectus” means the prospectus in the form first used (or made available to the Underwriters by the Company upon the request of a purchaser pursuant to Rule 173 under the Securities Act) in connection with confirmation of sales of the Securities. If the Company has filed an abbreviated registration statement pursuant to Rule 462(b) under the Securities Act (the “Rule 462 Registration Statement”), then any reference herein to the term “Registration Statement” shall be deemed to include such Rule 462 Registration Statement. Any reference in this Agreement to the Registration Statement, any Preliminary Prospectus or the Prospectus shall be deemed to refer to and include the documents incorporated by reference therein pursuant to Item 12 of Form S-3 under the Securities Act, as of the effective date of the Registration Statement or the date of such Preliminary Prospectus or the Prospectus, as the case may be, and any reference to “amend”, “amendment” or “supplement” with respect to the Registration Statement, any Preliminary Prospectus or the Prospectus shall be deemed to refer to and include any documents filed after such date under the Securities Exchange Act of 1934, as amended, and the rules and regulations of the Commission thereunder (collectively, the “Exchange Act”) that are deemed to be incorporated by reference therein. Capitalized terms used but not defined herein shall have the meanings given to such terms in the Registration Statement and the Prospectus.

At or prior to the Applicable Time (as defined below), the Company had prepared the following information (collectively, the “Pricing Disclosure Package”): a Preliminary Prospectus dated July 10, 2013 and each “free-writing prospectus” (as defined pursuant to Rule 405 under the Securities Act) listed on Annex B hereto.

“Applicable Time” means 9:00 P.M., New York City time, on July 11, 2013.

2. Purchase of the Securities by the Underwriters.

(a) The Company agrees to issue and sell the Underwritten Securities to the several Underwriters as provided in this Agreement, and each Underwriter, on the basis of the representations, warranties and agreements set forth herein and subject to the conditions set forth herein, agrees, severally

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and not jointly, to purchase from the Company the respective principal amount of Underwritten Securities set forth opposite such Underwriter’s name in Schedule 1 hereto at a price equal to 96.75% of the principal amount thereof (the “Purchase Price”) plus accrued interest, if any, from July 17, 2013 to the Closing Date (as defined below).

In addition, the Company agrees to issue and sell the Option Securities to the several Underwriters as provided in this Agreement, and the Underwriters, on the basis of the representations, warranties and agreements set forth herein and subject to the conditions set forth herein, shall have the option to purchase, severally and not jointly, from the Company the Option Securities at the Purchase Price plus accrued interest, if any, from the Closing Date to the date of payment and delivery.

If any Option Securities are to be purchased, the amount of Option Securities to be purchased by each Underwriter shall be the amount of Option Securities which bears the same ratio to the aggregate amount of Option Securities being purchased as the amount of Underwritten Securities set forth opposite the name of such Underwriter in Schedule 1 hereto (or such amount increased as set forth in Section 10 hereof) bears to the aggregate amount of Underwritten Securities being purchased from the Company by the several Underwriters, subject, however, to such adjustments to eliminate Securities in denominations other than \$1,000 as the Representatives in its sole discretion shall make.

The Underwriters may exercise the option to purchase Option Securities at any time in whole, or from time to time in part, on or before the thirtieth day following the date of the Prospectus, by written notice from the Representatives to the Company. Such notice shall set forth the aggregate amount of Option Securities as to which the option is being exercised and the date and time when the Option Securities are to be delivered and paid for, which may be the same date and time as the Closing Date (as hereinafter defined) but shall not be earlier than the Closing Date or later than the tenth full business day (as hereinafter defined) after the date of such notice (unless such time and date are postponed in accordance with the provisions of Section 10 hereof). Any such notice shall be given at least two business days prior to the date and time of delivery specified therein.

(b) The Company understands that the Underwriters intend to make a public offering of the Securities as soon after the effectiveness of this Agreement as in the judgment of the Representatives is advisable, and initially to offer the Securities on the terms set forth in the Prospectus. The Company acknowledges and agrees that the Underwriters may offer and sell Securities to or through any affiliate of an Underwriter and that any such affiliate may offer and sell Securities purchased by it to or through any Underwriter.

(c) Payment for the Securities shall be made by wire transfer in immediately available funds to the account specified by the Company to the Representatives in the case of the Underwritten Securities, at the offices of Davis Polk & Wardwell LLP, 450 Lexington Avenue, New York, New York 10017, at 10:00 A.M., New York City time, on July 17, 2013, or at such other time or place on the same or such other date, not later than the fifth business day thereafter, as the Representatives and the Company may agree upon in writing or, in the case of the Option Securities, on the date and at the time and place specified by the Representatives in the written notice of the Underwriters’ election to purchase such Option Securities. The time and date of such payment for the Underwritten Securities is referred to herein as the “Closing Date”, and the time and date for such payment for the Option Securities, if other than the Closing Date, is herein referred to as the “Additional Closing Date”.

Payment for the Securities to be purchased on the Closing Date or the Additional Closing Date, as the case may be, shall be made against delivery to the nominee of The Depository Trust Company (“DTC”) for the respective accounts of the several Underwriters of the Securities to be purchased on the Closing Date of one or more global notes representing the Securities (collectively, the “Global Note”) or

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the Additional Closing Date, as the case may be, with any transfer taxes payable in connection with the sale of such Securities duly paid by the Company. The Global Note will be made available for inspection by the Representatives at the office of DTC or its designated custodian not later than 1:00 P.M., New York City time, on the business day prior to the Closing Date or the Additional Closing Date, as the case may be.

(d) The Company acknowledges and agrees that the Underwriters are acting solely in the capacity of an arm’s length contractual counterparty to the Company with respect to the offering of Securities contemplated hereby (including in connection with determining the terms of the offering) and not as a financial advisor or a fiduciary to, or an agent of, the Company or any other person. Additionally, neither the Representatives nor any other Underwriter are advising the Company or any other person as to any legal, tax, investment, accounting or regulatory matters in any jurisdiction. The Company shall consult with its own advisors concerning such matters and shall be responsible for making its own independent investigation and appraisal of the transactions contemplated hereby, and the Underwriters shall have no responsibility or liability to the Company with respect thereto. Any review by the Underwriters of the Company, the transactions contemplated hereby or other matters relating to such transactions will be performed solely for the benefit of the Underwriters and shall not be on behalf of the Company.

3. Representations and Warranties of the Company. The Company represents and warrants to each Underwriter that:

(a) *Preliminary Prospectus.* No order preventing or suspending the use of any Preliminary Prospectus has been issued by the Commission, and each Preliminary Prospectus included in the Pricing Disclosure Package, at the time of filing thereof, complied in all material respects with the Securities Act, and no Preliminary Prospectus, at the time of filing thereof, contained any untrue statement of a material fact or

omitted to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided that the Company makes no representation and warranty with respect to any statements or omissions made in reliance upon and in conformity with information relating to any Underwriter furnished to the Company in writing by such Underwriter through the Representatives expressly for use in any Preliminary Prospectus, it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in Section 7(b) hereof.

(b) *Pricing Disclosure Package.* The Pricing Disclosure Package as of the Applicable Time did not, and as of the Closing Date and as of the Additional Closing Date, as the case may be, will not, contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided that the Company makes no representation and warranty with respect to any statements or omissions made in reliance upon and in conformity with information relating to any Underwriter furnished to the Company in writing by such Underwriter through the Representatives expressly for use in such Pricing Disclosure Package, it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in Section 7(b) hereof.

(c) *Issuer Free Writing Prospectus.* Other than the Registration Statement, the Preliminary Prospectus and the Prospectus, the Company (including its agents and representatives, other than the Underwriters in their capacity as such) has not prepared, used, authorized, approved or referred to and will not prepare, use, authorize, approve or refer to any “written communication” (as defined in Rule 405 under the Securities Act) that constitutes an

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offer to sell or solicitation of an offer to buy the Securities (each such communication by the Company or its agents and representatives (other than a communication referred to in clause (i) below) an “Issuer Free Writing Prospectus”) other than (i) any document not constituting a prospectus pursuant to Section 2(a)(10)(a) of the Securities Act or Rule 134 under the Securities Act or (ii) the documents listed on Annex B hereto, each electronic road show and any other written communications approved in writing in advance by the Representatives. Each such Issuer Free Writing Prospectus complied in all material respects with the Securities Act, has been or will be (within the time period specified in Rule 433) filed in accordance with the Securities Act (to the extent required thereby) and, when taken together with the Preliminary Prospectus accompanying, or delivered prior to delivery of, such Issuer Free Writing Prospectus, did not, and as of the Closing Date and as of the Additional Closing Date, as the case may be, will not, contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided that the Company makes no representation and warranty with respect to any statements or omissions made in each such Issuer Free Writing Prospectus or Preliminary Prospectus in reliance upon and in conformity with information relating to any Underwriter furnished to the Company in writing by such Underwriter through the Representatives expressly for use in such Issuer Free Writing Prospectus or Preliminary Prospectus, it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in Section 7(b) hereof.

(d) *Emerging Growth Company.* From the time of initial filing of the Registration Statement with the Commission (or, if earlier, the first date on which the Company engaged directly or through any person authorized to act on its behalf in any Testing-the-Waters Communication) through the date hereof, the Company has been and as of the date hereof is an “emerging growth company,” as defined in Section 2(a) of the Securities Act (an “Emerging Growth Company”). “Testing-the-Waters Communication” means any oral or written communication with potential investors undertaken in reliance on Section 5(d) of the Securities Act.

(e) *Testing-the-Waters Materials.* The Company (i) has not alone engaged in any Testing-the-Waters Communications other than Testing-the-Waters Communications with the consent of the Representatives with entities that are qualified institutional buyers within the meaning of Rule 144A under the Securities Act or institutions that are accredited investors within the meaning of Rule 501 under the Securities Act and (ii) has not authorized anyone other than the Representatives to engage in Testing-the-Waters Communications. The Company reconfirms that the Representatives have been authorized to act on its behalf in undertaking Testing-the-Waters Communications. The Company has not distributed or approved for distribution any Written Testing-the-Waters Communications other than those listed on Annex D hereto. “Written Testing-the-Waters Communication” means any Testing-the-Waters Communication that is a written communication within the meaning of Rule 405 under the Securities Act. Any individual Written Testing-the-Waters Communication does not conflict with the information contained in the Registration Statement or the Pricing Disclosure Package, complied in all material respects with the Securities Act, and when taken together with the Pricing Disclosure Package as of the Applicable Time, did not, and as of the Closing Date and as of the Additional Closing Date, as the case may be, will not, contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(f) *Registration Statement and Prospectus.* The Registration Statement has been declared effective by the Commission. No order suspending the effectiveness of the Registration

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Statement has been issued by the Commission, and, to the knowledge of the Company, no proceeding for that purpose or pursuant to Section 8A of the Securities Act against the Company or related to the offering of the Securities has been initiated or threatened by the Commission; as of the applicable effective date of the Registration Statement and any post-effective amendment thereto, the Registration Statement and any such post-effective amendment complied and will comply in all material respects with the Securities Act and the Trust Indenture Act of 1939, as amended, and the rules and regulations of the Commission thereunder (collectively, the “Trust Indenture Act”), and did not and will not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary in order to make the statements therein not misleading; and as of the date of the Prospectus and any amendment or supplement thereto and as of the Closing Date and as of the Additional Closing Date, as the case may be, the Prospectus will not contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided that the Company makes no representation and warranty with respect to (i) that part of the Registration Statement that constitutes the Statement of Eligibility and Qualification (Form T-1) of the Trustee under the Trust Indenture Act or (ii) any statements or omissions made in reliance upon and in conformity with information relating to any Underwriter furnished to the Company in writing by such Underwriter through the Representatives expressly for use

in the Registration Statement and the Prospectus and any amendment or supplement thereto, it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in Section 7(b) hereof.

(g) *Incorporated Documents.* The documents incorporated by reference in the Registration Statement, the Prospectus and the Pricing Disclosure Package, when they were filed with the Commission conformed in all material respects to the requirements of the Exchange Act, and none of such documents contained any untrue statement of a material fact or omitted to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading; and any further document so filed and incorporated by reference in the Registration Statement, the Prospectus or the Pricing Disclosure Package, when such documents are filed with the Commission, will conform in all material respects to the requirements of the Exchange Act and will not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(h) *Financial Statements.* The financial statements (including the related notes thereto) of the Company and its consolidated subsidiaries included or incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus comply in all material respects with the applicable requirements of the Securities Act and the Exchange Act, as applicable, and present fairly the financial position of the Company and its consolidated subsidiaries as of the dates indicated and the results of their operations and the changes in their cash flows for the periods specified; such financial statements have been prepared in conformity with generally accepted accounting principles in the United States (“GAAP”) applied on a consistent basis throughout the periods covered thereby, except as otherwise disclosed therein and, in the case of unaudited, interim financial statements, subject to normal year-end audit adjustments and the exclusion of certain footnotes, and any supporting schedules included or incorporated by reference in the Registration Statement present fairly the information required to be stated therein; and the other financial information included or incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus has been derived from the accounting records of the Company and its consolidated subsidiaries and presents fairly the information shown thereby.

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(i) *No Material Adverse Change.* Since the date of the most recent financial statements of the Company included or incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus, (i) there has not been any material change in the capital stock (other than the issuance of shares of Common Stock upon exercise of stock options and warrants described as outstanding in, and the grant of options and awards under existing equity incentive plans described in, the Registration Statement, the Pricing Disclosure Package and the Prospectus), short-term debt or long-term debt of the Company or any of its subsidiaries, or any dividend or distribution of any kind declared, set aside for payment, paid or made by the Company on any class of capital stock, or any material adverse change, or any development that would reasonably be expected to result in a material adverse change, in or affecting the business, properties, management, financial position, stockholders’ equity, results of operations or prospects of the Company and its subsidiaries taken as a whole; (ii) neither the Company nor any of its subsidiaries has entered into any transaction or agreement (whether or not in the ordinary course of business) that is material to the Company and its subsidiaries taken as a whole or incurred any liability or obligation, direct or contingent, that is material to the Company and its subsidiaries taken as a whole; and (iii) neither the Company nor any of its subsidiaries has sustained any loss or interference with its business that is material to the Company and its subsidiaries taken as a whole and that is either from fire, explosion, flood or other calamity, whether or not covered by insurance, or from any labor disturbance or dispute or any action, order or decree of any court or arbitrator or governmental or regulatory authority, except in each of the foregoing clauses (i), (ii) or (iii) as otherwise disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus.

(j) *Organization and Good Standing.* The Company and each of its subsidiaries have been duly organized and are validly existing and in good standing under the laws of their respective jurisdictions of organization, are duly qualified to do business and are in good standing in each jurisdiction in which their respective ownership or lease of property or the conduct of their respective businesses requires such qualification, and have all power and authority necessary to own or hold their respective properties and to conduct the businesses in which they are engaged, except where the failure to be so qualified or in good standing or have such power or authority would not, individually or in the aggregate, have a material adverse effect on the business, properties, management, financial position, stockholders’ equity, results of operations or prospects of the Company and its subsidiaries taken as a whole or on the performance by the Company of its obligations under the Transaction Documents (as defined below) (a “Material Adverse Effect”). The Company does not own or control, directly or indirectly, any corporation, association or other entity other than the subsidiaries listed in Exhibit 21 to the Registration Statement.

(k) *Capitalization.* The Company has an authorized capitalization as set forth in the Registration Statement, the Pricing Disclosure Package and the Prospectus under the heading “Capitalization”; all the outstanding shares of capital stock of the Company have been duly and validly authorized and issued and are fully paid and non-assessable and are not subject to any pre-emptive or similar rights; except as described in or expressly contemplated by the Pricing Disclosure Package and the Prospectus, there are no outstanding rights (including, without limitation, pre-emptive rights), warrants or options to acquire, or instruments convertible into or exchangeable for, any shares of capital stock or other equity interest in the Company or any of its subsidiaries, or any contract, commitment, agreement, understanding or arrangement of any kind relating to the issuance of any capital stock of the Company or any such subsidiary, any such convertible or exchangeable securities or any such rights, warrants or options; the capital stock of the Company conforms in all material respects to the description thereof contained in the Registration Statement, the Pricing Disclosure Package and the Prospectus; and all the

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outstanding shares of capital stock or other equity interests of each subsidiary owned, directly or indirectly, by the Company have been duly and validly authorized and issued, are fully paid and non-assessable (except, in the case of any foreign subsidiary, for directors’ qualifying shares ) and are owned directly or indirectly by the Company, free and clear of any lien, charge, encumbrance, security interest, restriction on voting or transfer or any other claim of any third party.

(l) *Stock Options.* With respect to the stock options (the “Stock Options”) granted pursuant to the stock-based compensation plans of the Company and its subsidiaries (the “Company Stock Plans”), (i) to the knowledge of the Company, each Stock Option intended to qualify as an “incentive stock option” under Section 422 of the Code so qualifies, (ii) each grant of a Stock Option was duly authorized no later than the date on which the grant of such Stock Option was by its terms to be effective (the “Grant Date”) by all necessary corporate action, including, as applicable, approval by the board of directors of the Company (or a duly constituted and authorized committee thereof) and any required stockholder approval by the necessary number of votes or written consents, and, to the knowledge of the Company (other than with respect to due execution and delivery

by the Company), the award agreement governing such grant (if any) was duly executed and delivered by each party thereto, (iii) each such grant was made in accordance with the terms of the Company Stock Plans, applicable Exchange Act and all other laws and regulatory rules or requirements, including the applicable rules of the NASDAQ Global Market (the “Nasdaq Market”) and any other exchange on which Company securities are traded, and (iv) each such grant was properly accounted for in accordance with GAAP in the financial statements (including the related notes) of the Company and, as applicable, disclosed in the Company’s filings with the Commission in accordance with the Exchange Act and all other applicable laws. The Company has not knowingly granted, and there is no and has been no policy or practice of the Company of granting, Stock Options prior to, or otherwise coordinating the grant of Stock Options with, the release or other public announcement of material information regarding the Company or its subsidiaries or their results of operations or prospects.

(m) *Due Authorization.* The Company has full right, power and authority to execute and deliver this Agreement, the Indenture and the Securities (collectively, the “Transaction Documents”) and to perform its obligations hereunder and thereunder; and all action required to be taken for the due and proper authorization, execution and delivery by it of each of the Transaction Documents and the consummation by it of the transactions contemplated thereby or by the Time of Sale Information and the Prospectus has been duly and validly taken.

(n) *The Indenture.* The Indenture has been duly authorized by the Company and upon effectiveness of the Registration Statement and on the Closing Date and on the Additional Closing Date, as the case may be, was or will have been duly qualified under the Trust Indenture Act and, when duly executed and delivered in accordance with its terms by each of the parties thereto, will constitute a valid and legally binding agreement of the Company enforceable against the Company in accordance with its terms, except as enforceability may be limited by applicable bankruptcy, insolvency or similar laws affecting creditors’ rights generally or by equitable principles relating to enforceability (collectively, the “Enforceability Exceptions”).

(o) *Underwriting Agreement.* This Agreement has been duly authorized, executed and delivered by the Company.

(p) *The Securities.* The Securities to be issued and sold by the Company hereunder have been duly authorized by the Company and, when duly executed, authenticated, issued and delivered as provided in the Indenture and paid for as provided herein, will be duly and validly issued and will constitute valid and legally binding obligations to the Company enforceable

against the Company in accordance with their terms, and will be entitled to the benefits of the Indenture, subject to the Enforceability Exceptions.

(q) *The Underlying Securities.* Upon issuance and delivery of the Securities in accordance with this Agreement and the Indenture, the Securities will be convertible at the option of the holder thereof into cash, Underlying Securities or a combination thereof, subject to certain conditions set forth in, and in accordance with the terms of, the Securities and the Indenture; a number of Underlying Securities equal to the maximum number of shares of Common Stock initially issuable upon conversion of the Securities (assuming, for such purposes, that the Company elected (or was deemed to have elected) Physical Settlement (as defined in the Supplemental Indenture) in respect of all conversions of the Securities and including the maximum number of shares of Common Stock that may be added to the Conversion Rate (as defined in the Supplemental Indenture) upon conversion upon a Make-Whole Fundamental Change (as defined in the Supplemental Indenture)) (the “Maximum Number of Underlying Securities”) has been duly authorized and reserved and, when issued upon conversion of the Securities in accordance with the terms of the Securities, such Maximum Number of Underlying Securities will be validly issued, fully paid and non-assessable, and the issuance of such Maximum Number of Underlying Securities will not be subject to any preemptive or similar rights.

(r) *Descriptions of the Transaction Documents.* Each Transaction Document conforms in all material respects to the description thereof contained in the Registration Statement, the Pricing Disclosure Package and the Prospectus.

(s) *No Violation or Default.* Neither the Company nor any of its subsidiaries is (i) in violation of its charter or by-laws or similar organizational documents; (ii) in default, and no event has occurred that, with notice or lapse of time or both, would constitute such a default, in the due performance or observance of any term, covenant or condition contained in any indenture, mortgage, deed of trust, loan agreement or other agreement or instrument to which the Company or any of its subsidiaries is a party or by which the Company or any of its subsidiaries is bound or to which any of the property or assets of the Company or any of its subsidiaries is subject; or (iii) in violation of any law or statute or any judgment, order, rule or regulation of any court or arbitrator or governmental or regulatory authority having jurisdiction over the Company or any of its subsidiaries, except, in the case of clauses (ii) and (iii) above, for any such default or violation that would not, individually or in the aggregate, have a Material Adverse Effect.

(t) *No Conflicts.* The execution, delivery and performance by the Company of each of the Transaction Documents, the issuance and sale of the Securities (including the issuance of any Underlying Securities upon conversion thereof) and the consummation of the transactions contemplated by the Transaction Documents will not (i) conflict with or result in a breach or violation of any of the terms or provisions of, or constitute a default under, or result in the creation or imposition of any lien, charge or encumbrance upon any property or assets of the Company or any of its subsidiaries pursuant to, any indenture, mortgage, deed of trust, loan agreement or other agreement or instrument to which the Company or any of its subsidiaries is a party or by which the Company or any of its subsidiaries is bound or to which any of the property or assets of the Company or any of its subsidiaries is subject, (ii) result in any violation of the provisions of the charter or by-laws or similar organizational documents of the Company or any of its subsidiaries or (iii) result in the violation of any law or statute or any judgment, order, rule or regulation of any court or arbitrator or governmental or regulatory authority having jurisdiction over the Company or any of its subsidiaries, except, in the case of clauses (i) and (iii) above, for

any such conflict, breach, violation or default that would not, individually or in the aggregate, have a Material Adverse Effect.

(u) *No Consents Required.* No consent, approval, authorization, order, license, registration or qualification of or with any court or arbitrator or governmental or regulatory authority is required for the execution, delivery and performance by the Company of each of the Transaction Documents, the issuance and sale of the Securities (including the issuance of any Underlying Securities upon conversion thereof) and the

consummation of the transactions contemplated by the Transaction Documents, except for the registration of the Securities under the Securities Act, the qualification of the Indenture under the Trust Indenture Act and such consents, approvals, authorizations, orders and registrations or qualifications as have already been obtained or made or as may be required by the Financial Industry Regulatory Authority, Inc. ("FINRA") or the Nasdaq Market or under applicable state securities laws in connection with the purchase and distribution of the Securities by the Underwriters.

(v) *Legal Proceedings.* Except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, there are no legal, governmental or regulatory investigations, actions, suits or proceedings pending to which the Company or any of its subsidiaries is a party or to which any property of the Company or any of its subsidiaries is subject that, individually or in the aggregate, would reasonably be expected to have a Material Adverse Effect; to the knowledge of the Company, no such investigations, actions, suits or proceedings are threatened or contemplated by any governmental or regulatory authority or threatened by others; and (i) there are no current or pending legal, governmental or regulatory actions, suits or proceedings that are required under the Securities Act to be described in the Registration Statement, the Pricing Disclosure Package or the Prospectus that are not so described in the Registration Statement, the Pricing Disclosure Package and the Prospectus and (ii) there are no statutes, regulations or contracts or other documents that are required under the Securities Act to be filed as exhibits to the Registration Statement or described in the Registration Statement, the Pricing Disclosure Package or the Prospectus that are not so filed as exhibits to the Registration Statement or described in the Registration Statement, the Pricing Disclosure Package and the Prospectus.

(w) *Independent Accountants.* PricewaterhouseCoopers LLP, who have certified certain financial statements of the Company and its subsidiaries, is an independent registered public accounting firm with respect to the Company and its subsidiaries within the applicable rules and regulations adopted by the Commission and the Public Company Accounting Oversight Board (United States) and as required by the Securities Act.

(x) *Title to Real and Personal Property.* Except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, the Company and its subsidiaries have good title in fee simple (in the case of real property) to, or have valid rights to lease or otherwise use, all items of real and personal property and assets that are material to the business of the Company and its subsidiaries taken as a whole, in each case free and clear of all liens, encumbrances, claims and defects and imperfections of title except those that (i) do not materially interfere with the use made and proposed to be made of such property by the Company and its subsidiaries or (ii) would not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect.

(y) *Title to Intellectual Property.* Except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, the Company and its subsidiaries own or possess adequate rights to all patents, patent applications, trademarks, service marks, trade names, trademark

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registrations and applications, service mark registrations and applications, domain names, goodwill associated with the foregoing, copyrights, licenses and know-how (including trade secrets and other unpatented and/or unpatentable proprietary or confidential information, systems or procedures) necessary for the conduct of their respective businesses in all material respects as currently conducted and as proposed to be conducted, and, to the knowledge of the Company, the conduct of their respective businesses does not and will not infringe, constitute a misappropriation of, or otherwise violate in any material respect any such rights of others. The Company and its subsidiaries have not received any written notice of any claim of infringement, misappropriation or other violation of any such rights of others or any written notice challenging the validity, scope or enforceability of their respective patents or rights therein, in each case, which could reasonably be expected to result in a Material Adverse Effect. The Company is not aware of any specific facts or combination of facts that cause the Company to reasonably conclude that any of the material issued or granted patents owned by or licensed to the Company or any of its subsidiaries is invalid or unenforceable and, to the knowledge of the Company, all such issued or granted patents are valid and enforceable.

(z) *No Undisclosed Relationships.* No relationship, direct or indirect, exists between or among the Company or any of its subsidiaries, on the one hand, and the directors, officers, stockholders, customers or suppliers of the Company or any of its subsidiaries, on the other, that is required by the Securities Act to be described in the Registration Statement and the Prospectus and that is not so described in such documents and in the Pricing Disclosure Package.

(aa) *Investment Company Act.* The Company is not and, after giving effect to the offering and sale of the Securities and the application of the proceeds thereof as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, will not be required to register as an "investment company" or an entity "controlled" by an "investment company" within the meaning of the Investment Company Act of 1940, as amended, and the rules and regulations of the Commission thereunder (collectively, the "Investment Company Act").

(bb) *Taxes.* The Company and its subsidiaries have filed all federal, state, local and foreign tax returns required to be filed through the date hereof and all such returns are true and complete in all material respects. The Company and its subsidiaries have paid all taxes shown as due on such returns, except for taxes being contested in good faith and for which adequate reserves have been taken, and except as would not, individually or in the aggregate, have a Material Adverse Effect. Except as otherwise disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus, there is no tax deficiency that has been, or would reasonably be expected to be, asserted against the Company or any of its subsidiaries or any of their respective properties or assets, in each case, except as would not have a Material Adverse Effect.

(cc) *Licenses and Permits.* The Company and its subsidiaries possess all licenses, certificates, permits and other authorizations issued by, and have made all declarations and filings with, the appropriate federal, state, local or foreign governmental or regulatory authorities that are necessary for the ownership or lease of their respective properties or the conduct of their respective businesses as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, except where the failure to possess or make the same would not, individually or in the aggregate, have a Material Adverse Effect; and except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, neither the Company nor any of its subsidiaries has received notice of any revocation or modification of any such license, certificate, permit or authorization or has any reason to believe that any such license, certificate, permit or authorization will not be renewed in the ordinary course. Except as described in the Registration

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Statement, the Pricing Disclosure Package and the Prospectus, as applicable, the Company and its subsidiaries (i) are, and at all times have been, in compliance with all statutes, rules and regulations applicable to the ownership, testing, development, manufacture, packaging, processing, use, distribution, storage, import, export or disposal of any product manufactured or distributed by the Company or its subsidiaries (“Applicable Laws”), except where such noncompliance would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect; and (ii) have not received any U.S. Food and Drug Administration (“FDA”) Form 483, written notice of adverse finding, warning letter, untitled letter or other correspondence or written notice from any court or arbitrator or governmental or regulatory authority alleging or asserting non-compliance with (x) any Applicable Laws or (y) any licenses, exemptions, certificates, approvals, clearances, authorizations, permits and supplements or amendments thereto required by any such Applicable Laws.

(dd) *No Labor Disputes.* No labor disturbance by or dispute with employees of the Company or any of its subsidiaries exists or, to the knowledge of the Company, is contemplated or threatened, and the Company is not aware of any existing or imminent labor disturbance by, or dispute with, the employees of any of its or its subsidiaries’ principal suppliers, contractors or customers, except as would not have a Material Adverse Effect.

(ee) *Compliance with and Liability under Environmental Laws.* (i) The Company and its subsidiaries (a) are, and at all prior times were, in compliance with any and all applicable federal, state, local and foreign laws, rules, regulations, requirements, decisions, judgments, decrees, orders and the common law relating to pollution or the protection of the environment, natural resources or human health or safety, including those relating to the generation, storage, treatment, use, handling, transportation, Release or threat of Release of Hazardous Materials (collectively, “Environmental Laws”), (b) have received and are in compliance with all permits, licenses, certificates or other authorizations or approvals required of them under applicable Environmental Laws to conduct their respective businesses, (c) have not received notice of any actual or potential liability under or relating to, or actual or potential violation of, any Environmental Laws, including for the investigation or remediation of any Release or threat of Release of Hazardous Materials, and have no knowledge of any event or condition that would reasonably be expected to result in any such notice, (d) are not conducting or paying for, in whole or in part, any investigation, remediation or other corrective action pursuant to any Environmental Law at any location, and (e) are not a party to any order, decree or agreement that imposes any obligation or liability under any Environmental Law, and (ii) there are no costs or liabilities associated with Environmental Laws of or relating to the Company or its subsidiaries, except in the case of each of (i) and (ii) above, for any such matter, as would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect; and (iii) except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, (a) there are no proceedings that are pending, or, to the knowledge of the Company, contemplated, against the Company or any of its subsidiaries under any Environmental Laws in which a governmental entity is also a party, other than such proceedings regarding which it is reasonably believed no monetary sanctions of \$100,000 or more will be imposed, (b) the Company and its subsidiaries are not aware of any facts or issues regarding compliance with Environmental Laws, or liabilities or other obligations under Environmental Laws, including the Release or threat of Release of Hazardous Materials, that would reasonably be expected to have a material effect on the capital expenditures, earnings or competitive position of the Company and its subsidiaries, and (c) none of the Company and its subsidiaries anticipates material capital expenditures relating to any Environmental Laws.

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(ff) *Hazardous Materials.* There has been no storage, generation, transportation, use, handling, treatment, Release or threat of Release of Hazardous Materials by, relating to or caused by the Company or any of its subsidiaries (or, to the knowledge of the Company and its subsidiaries, any other entity (including any predecessor) for whose acts or omissions the Company or any of its subsidiaries is or would reasonably be expected to be liable) at, on, under or from any property or facility now or previously owned, operated or leased by the Company or any of its subsidiaries, or at, on, under or from any other property or facility, in violation of any Environmental Laws or in a manner or amount or to a location that would reasonably be expected to result in any liability under any Environmental Law, except for any violation or liability which would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect. “Hazardous Materials” means any material, chemical, substance, waste, pollutant, contaminant, compound, mixture, or constituent thereof, in any form or amount, including petroleum (including crude oil or any fraction thereof) and petroleum products, natural gas liquids, asbestos and asbestos containing materials, naturally occurring radioactive materials, brine, and drilling mud, regulated or which can give rise to liability under any Environmental Law. “Release” means any spilling, leaking, seepage, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, disposing, depositing, dispersing, or migrating in, into or through the environment, or in, into from or through any building or structure.

(gg) *Compliance with ERISA.* (i) Each employee benefit plan, within the meaning of Section 3(3) of the Employee Retirement Income Security Act of 1974, as amended (“ERISA”), for which the Company or any member of its “Controlled Group” (defined as any organization which is a member of a controlled group of corporations within the meaning of Section 414 of the Internal Revenue Code of 1986, as amended (the “Code”)) would have any liability (each, a “Plan”) has been maintained in compliance with its terms and the requirements of any applicable statutes, orders, rules and regulations, including but not limited to ERISA and the Code, except for noncompliance that would not reasonably be expected to result in material liability to the Company or its subsidiaries; (ii) no prohibited transaction, within the meaning of Section 406 of ERISA or Section 4975 of the Code, has occurred with respect to any Plan excluding transactions effected pursuant to a statutory or administrative exemption that would reasonably be expected to result in a material liability to the Company or its subsidiaries; (iii) for each Plan that is subject to the funding rules of Section 412 of the Code or Section 302 of ERISA, the minimum funding standard of Section 412 of the Code or Section 302 of ERISA, as applicable, has been satisfied (without taking into account any waiver thereof or extension of any amortization period) and is reasonably expected to be satisfied in the future (without taking into account any waiver thereof or extension of any amortization period); (iv) the fair market value of the assets of each Plan that is required to be funded exceeds the present value of all benefits accrued under such Plan (determined based on those assumptions used to fund such Plan); (v) no “reportable event” (within the meaning of Section 4043(c) of ERISA) has occurred or is reasonably expected to occur that either has resulted, or would reasonably be expected to result, in material liability to the Company or its subsidiaries; (vi) neither the Company nor any member of the Controlled Group has incurred, nor reasonably expects to incur, any liability under Title IV of ERISA (other than contributions to the Plan or premiums to the PBGC, in the ordinary course and without default) in respect of a Plan (including a “multiemployer plan”, within the meaning of Section 4001(a)(3) of ERISA); and (vii) there is no pending audit or investigation by the Internal Revenue Service, the U.S. Department of Labor, the Pension Benefit Guaranty Corporation or any other governmental agency or any foreign regulatory agency with respect to any Plan that would reasonably be expected to result in material liability to the Company or its subsidiaries. None of the following events has occurred or is reasonably likely to occur: (x) a material increase in the aggregate amount of contributions required to be made to all Plans by the Company or its

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subsidiaries in the current fiscal year of the Company and its subsidiaries compared to the amount of such contributions made in the Company and its subsidiaries' most recently completed fiscal year, other than an increase solely attributable to (A) an increase in the number of employees covered by such Plans or (B) an increase arising from the renewal in the ordinary course of business of contracts with vendors, insurers, plan administrators or other similar service providers under which the benefits of the Plans are provided; or (y) a material increase in the Company and its subsidiaries' "accumulated post-retirement benefit obligations" (within the meaning of Statement of Financial Accounting Standards 106) compared to the amount of such obligations in the Company and its subsidiaries' most recently completed fiscal year.

(hh) *Disclosure Controls.* The Company and its subsidiaries maintain an effective system of "disclosure controls and procedures" (as defined in Rule 13a-15(e) of the Securities Exchange Act of 1934, as amended, and the rules and regulations of the Commission thereunder (collectively, the "Exchange Act")) that complies with the requirements of the Exchange Act and that has been designed to ensure that information required to be disclosed by the Company in reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Commission's rules and forms, including controls and procedures designed to ensure that such information is accumulated and communicated to the Company's management as appropriate to allow timely decisions regarding required disclosure. The Company and its subsidiaries have carried out evaluations of the effectiveness of their disclosure controls and procedures as required by Rule 13a-15 of the Exchange Act.

(ii) *Accounting Controls.* The Company and its subsidiaries maintain systems of "internal control over financial reporting" (as defined in Rule 13a-15(f) of the Exchange Act) that comply with the requirements of the Exchange Act and have been designed by, or under the supervision of, their respective principal executive and principal financial officers, or persons performing similar functions, 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, including, but not limited to, internal accounting controls sufficient to provide reasonable assurance that (i) transactions are executed in accordance with management's general or specific authorizations; (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with generally accepted accounting principles and to maintain asset accountability; (iii) access to assets is permitted only in accordance with management's general or specific authorization; (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences and (v) interactive data in eXtensible Business Reporting Language included or incorporated by reference in the Registration Statement fairly presents the information called for in all material respects and is prepared in accordance with the Commission's rules and guidelines applicable thereto. Except as disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus, there are no material weaknesses in the Company's internal controls. The Company's auditors and the Audit Committee of the Board of Directors of the Company have been advised of: (i) all significant deficiencies and material weaknesses in the design or operation of internal controls over financial reporting which have adversely affected or are reasonably likely to adversely affect the Company's ability to record, process, summarize and report financial information; and (ii) any fraud, whether or not material, that involves management or other employees who have a significant role in the Company's internal controls over financial reporting.

(jj) *eXtensible Business Reporting Language.* The interactive data in eXtensible Business Reporting Language included or incorporated by reference in the Registration Statement

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fairly presents the information called for in all material respects and has been prepared in accordance with the Commission's rules and guidelines applicable thereto.

(kk) *Insurance.* Except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, the Company and its subsidiaries have insurance covering their respective properties, operations, personnel and businesses, including business interruption insurance, which insurance is in amounts and insures against such losses and risks as the Company reasonably believes are adequate to protect the Company and its subsidiaries and their respective businesses; and neither the Company nor any of its subsidiaries has (i) received notice from any insurer or agent of such insurer that material capital improvements or other expenditures are required or necessary to be made in order to continue such insurance or (ii) any reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage at reasonable cost from similar insurers as may be necessary to continue its business.

(ll) *No Unlawful Payments.* None of the Company, its subsidiaries and, to the knowledge of the Company, any director, officer, agent, employee or other person associated with or acting on behalf of the Company or any of its subsidiaries has (i) used any corporate funds for any unlawful contribution, gift, entertainment or other unlawful expense relating to political activity; (ii) made any direct or indirect unlawful payment to any foreign or domestic government official or employee from corporate funds; (iii) violated or is in violation of any provision of the Foreign Corrupt Practices Act of 1977; or (iv) made any bribe, rebate, payoff, influence payment, kickback or other unlawful payment.

(mm) *Compliance with Money Laundering Laws.* The operations of the Company and its subsidiaries are and have been conducted at all times in compliance with applicable financial recordkeeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, the money laundering statutes of all jurisdictions, the rules and regulations thereunder and any related or similar rules, regulations or guidelines, issued, administered or enforced by any governmental agency (collectively, the "Money Laundering Laws") and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any of its subsidiaries with respect to the Money Laundering Laws is pending or, to the knowledge of the Company, threatened.

(nn) *Compliance with OFAC.* None of the Company, its subsidiaries and, to the knowledge of the Company, any director, officer, agent, employee or affiliate of the Company or any of its subsidiaries is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Department of the Treasury ("OFAC"); and the Company will not, directly or indirectly, use the proceeds of the offering of the Securities hereunder, or lend, contribute or otherwise make available such proceeds to any subsidiary, joint venture partner or other person or entity, for the purpose of financing the activities of any person currently subject to any U.S. sanctions administered by OFAC.

(oo) *No Restrictions on Subsidiaries.* Except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, no subsidiary of the Company is currently prohibited, directly or indirectly, under any agreement or other instrument to which it is a party or is subject, from paying any dividends to the Company, from making any other distribution on such subsidiary's capital stock, from repaying



(pp) *No Broker's Fees.* None of the Company and its subsidiaries is a party to any contract, agreement or understanding with any person (other than this Agreement) that would give rise to a valid claim against the Company or any of its subsidiaries or any Underwriter for a brokerage commission, finder's fee or like payment in connection with the offering and sale of the Securities.

(qq) *No Registration Rights.* No person has the right to require the Company or any of its subsidiaries to register any securities for sale under the Securities Act by reason of the filing of the Registration Statement with the Commission or the issuance and sale of the Securities.

(rr) *No Stabilization.* The Company has not taken, directly or indirectly, without giving effect to activities by the Underwriters, any action designed to or that would reasonably be expected to cause or result in any stabilization or manipulation of the price of the Securities.

(ss) *Margin Rules.* The application of the proceeds received by the Company from the issuance, sale and delivery of the Securities as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus will not violate Regulation T, U or X of the Board of Governors of the Federal Reserve System or any other regulation of such Board of Governors.

(tt) *Forward-Looking Statements.* No forward-looking statement (within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act) contained in the Registration Statement, the Pricing Disclosure Package or the Prospectus has been made or reaffirmed without a reasonable basis or has been disclosed other than in good faith.

(uu) *Statistical and Market Data.* Nothing has come to the attention of the Company that has caused the Company to believe that the statistical and market-related data included in the Registration Statement, the Pricing Disclosure Package and the Prospectus is not based on or derived from sources that are reliable and accurate in all material respects.

(vv) *Clinical Trials.* The clinical and pre-clinical trials conducted by or, to the knowledge of the Company after due inquiry, on behalf of or sponsored by the Company or its subsidiaries, or in which the Company or its subsidiaries have participated, that are described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, or the results of which are referred to in the Registration Statement, the Pricing Disclosure Package and the Prospectus, as applicable, were, and if still pending are, being conducted in all material respects in accordance with standard medical and scientific research standards and procedures for products or product candidates comparable to those being developed by the Company and all applicable statutes and all applicable rules and regulations of the FDA and comparable regulatory agencies outside of the United States to which they are subject (collectively, the "Regulatory Authorities") and current Good Clinical Practices and Good Laboratory Practices; the descriptions in the Registration Statement, the Pricing Disclosure Package or the Prospectus of the results of such studies and tests are accurate and complete descriptions in all material respects and fairly present the data derived therefrom; the Company has no knowledge of any other trials not described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, the results of which are inconsistent with or call into question the results described or referred to in the Registration Statement, the Pricing Disclosure Package and the Prospectus; the Company and its subsidiaries have operated at all times and are currently in compliance in all material respects with all applicable statutes, rules and regulations of the Regulatory Authorities; neither the Company nor any of its subsidiaries have received any written notices, correspondence or other communications from the Regulatory Authorities or any other governmental agency requiring or threatening the termination, material modification or suspension of any clinical or pre-clinical

trials that are described in the Registration Statement, the Pricing Disclosure Package and the Prospectus or the results of which are referred to in the Registration Statement, the Pricing Disclosure Package and the Prospectus, other than ordinary course communications with respect to modifications in connection with the design and implementation of such trials, and, to the Company's best knowledge, there are no reasonable grounds for the same.

(ww) *Regulatory Filings.* The Company has not failed to file with the Regulatory Authorities any required filing, declaration, listing, registration, report or submission with respect to the Company's product candidates that are described or referred to in the Registration Statement, the Pricing Disclosure Package and the Prospectus; all such filings, declarations, listings, registrations, reports or submissions were in material compliance with applicable laws when filed; and no deficiencies regarding compliance with applicable law have been asserted by any applicable regulatory authority with respect to any such filings, declarations, listings, registrations, reports or submissions.

(xx) *Sarbanes-Oxley Act.* There is and has been no material failure on the part of the Company or, to the knowledge of the Company, any of the Company's directors or officers, in their capacities as such, to comply with any applicable provision of the Sarbanes-Oxley Act of 2002 and the rules and regulations promulgated in connection therewith (the "Sarbanes-Oxley Act"), including Section 402 related to loans and Sections 302 and 906 related to certifications.

(yy) *Status under the Securities Act.* At the time of filing the Registration Statement and any post-effective amendment thereto, at the earliest time thereafter that the Company or any offering participant made a *bona fide* offer (within the meaning of Rule 164(h)(2) under the Securities Act) of the Securities and at the date hereof, the Company was not and is not an "ineligible issuer," as defined in Rule 405 under the Securities Act.

4. Further Agreements of the Company. The Company covenants and agrees with each Underwriter that:

(a) *Required Filings.* The Company will file the final Prospectus with the Commission within the time periods specified by Rule 424(b) and Rule 430A, 430B or 430C under the Securities Act, will file any Issuer Free Writing Prospectus (including the term sheet substantially in the form of Annex C hereto) to the extent required by Rule 433 under the Securities Act; will file promptly all reports and any definitive proxy or information statements required to be filed by the Company with the Commission pursuant to Section 13(a), 13(c), 14 or 15(d) of

the Exchange Act subsequent to the date of the Prospectus and for so long as the delivery of a prospectus is required in connection with the offering or sale of the Securities and will furnish copies of the Prospectus and each Issuer Free Writing Prospectus (to the extent not previously delivered) to the Underwriters in New York City as soon as practicable, and in any event no later than 10:00 A.M., New York City time, on the second business day succeeding the date of this Agreement, in such quantities as the Representatives may reasonably request.

(b) *Delivery of Copies.* The Company will deliver, without charge, (i) to the Representatives, upon request, signed copies of the Registration Statement as originally filed and each amendment thereto, in each case including all exhibits and consents filed therewith and (ii) to each Underwriter (A) upon request, a conformed copy of the Registration Statement as originally filed and each amendment thereto (without exhibits) and (B) during the Prospectus Delivery Period (as defined below), as many copies of the Prospectus (including all amendments and supplements thereto and documents incorporated by reference therein and each Issuer Free Writing Prospectus) as the Representatives may reasonably request. As used herein, the term

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“Prospectus Delivery Period” means such period of time after the first date of the public offering of the Securities as in the opinion of counsel for the Underwriters a prospectus relating to the Securities is required by law to be delivered (or required to be delivered but for Rule 172 under the Securities Act) in connection with sales of the Securities by any Underwriter or dealer.

(c) *Amendments or Supplements, Issuer Free Writing Prospectuses.* Before preparing, using, authorizing, approving, referring to or filing any Issuer Free Writing Prospectus, and before filing any amendment or supplement to the Registration Statement or the Prospectus, the Company will furnish to the Representatives and counsel for the Underwriters a copy of the proposed Issuer Free Writing Prospectus, amendment or supplement for review and will not prepare, use, authorize, approve, refer to or file any such Issuer Free Writing Prospectus or file any such proposed amendment or supplement to which the Representatives reasonably object.

(d) *Notice to the Representatives.* The Company will advise the Representatives promptly, and confirm such advice in writing, (i) when any amendment to the Registration Statement has been filed or becomes effective; (ii) when any supplement to the Prospectus, any Issuer Free Writing Prospectus, or any Written Testing-the-Waters Communication or any amendment to the Prospectus has been filed; (iii) of any request by the Commission for any amendment to the Registration Statement or any amendment or supplement to the Prospectus or the receipt of any comments from the Commission relating to the Registration Statement or any other request by the Commission for any additional information, including, but not limited to, any request for information concerning any Testing-the-Waters Communication; (iv) of the issuance by the Commission of any order suspending the effectiveness of the Registration Statement or preventing or suspending the use of any Preliminary Prospectus, any of the Pricing Disclosure Package or the Prospectus or any Written Testing-the-Waters Communication or the initiation or threatening of any proceeding for that purpose or pursuant to Section 8A of the Securities Act; (v) of the occurrence of any event within the Prospectus Delivery Period as a result of which the Prospectus, the Pricing Disclosure Package, any Issuer Free Writing Prospectus or any Written Testing-the-Waters Communication as then amended or supplemented would include any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances existing when the Prospectus, the Pricing Disclosure Package, any such Issuer Free Writing Prospectus or Written Testing-the-Waters Communication is delivered to a purchaser, not misleading; and (vi) of the receipt by the Company of any notice with respect to any suspension of the qualification of the Securities for offer and sale in any jurisdiction or the initiation or threatening of any proceeding for such purpose; and the Company will use its best efforts to prevent the issuance of any such order suspending the effectiveness of the Registration Statement, preventing or suspending the use of any Preliminary Prospectus, any of the Pricing Disclosure Package or the Prospectus or any Written Testing-the-Waters Communication or suspending any such qualification of the Securities and, if any such order is issued, will use its reasonable best efforts to obtain as soon as possible the withdrawal thereof.

(e) *Ongoing Compliance.* (1) If during the Prospectus Delivery Period (i) any event shall occur or condition shall exist as a result of which the Prospectus as then amended or supplemented would include any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances existing when the Prospectus is delivered to a purchaser, not misleading or (ii) it is necessary to amend or supplement the Prospectus to comply with law, the Company will immediately notify the Underwriters thereof and forthwith prepare and, subject to paragraph (c) above, file with the Commission and furnish to the Underwriters and to such dealers as the Representatives may designate such amendments or supplements to the Prospectus as may be necessary so that the

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statements in the Prospectus as so amended or supplemented will not, in the light of the circumstances existing when the Prospectus is delivered to a purchaser, be misleading or so that the Prospectus will comply with law and (2) if at any time prior to the Closing Date (i) any event shall occur or condition shall exist as a result of which the Pricing Disclosure Package as then amended or supplemented would include any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances existing when the Pricing Disclosure Package is delivered to a purchaser, not misleading or (ii) it is necessary to amend or supplement the Pricing Disclosure Package to comply with law, the Company will immediately notify the Underwriters thereof and forthwith prepare and, subject to paragraph (c) above, file with the Commission (to the extent required) and furnish to the Underwriters and to such dealers as the Representatives may designate such amendments or supplements to the Pricing Disclosure Package as may be necessary so that the statements in the Pricing Disclosure Package as so amended or supplemented will not, in the light of the circumstances existing when the Pricing Disclosure Package is delivered to a purchaser, be misleading or so that the Pricing Disclosure Package will comply with law.

(f) *Blue Sky Compliance.* The Company will qualify the Securities for offer and sale under the securities or Blue Sky laws of such jurisdictions as the Representatives shall reasonably request and will continue such qualifications in effect so long as required for distribution of the Securities; provided that the Company shall not be required to (i) qualify as a foreign corporation or other entity or as a dealer in securities in any such jurisdiction where it would not otherwise be required to so qualify, (ii) file any general consent to service of process in any such jurisdiction or (iii) subject itself to taxation in any such jurisdiction if it is not otherwise so subject.

(g) *Earning Statement.* The Company will make generally available to its security holders and the Representatives as soon as practicable an earning statement that satisfies the provisions of Section 11(a) of the Securities Act and Rule 158 of the Commission promulgated

thereunder covering a period of at least twelve months beginning with the first fiscal quarter of the Company occurring after the “effective date” (as defined in Rule 158) of the Registration Statement.

(h) *Clear Market.* For a period of 90 days after the date of the Prospectus, the Company will not (i) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, or file with the Commission a registration statement under the Securities Act relating to, any shares of Common Stock or any securities convertible into or exercisable or exchangeable for Common Stock, or publicly disclose the intention to make any offer, sale, pledge, disposition or filing, or (ii) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of the Common Stock or any such other securities, whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of Common Stock or such other securities, in cash or otherwise, without the prior written consent of J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated, other than (A) the Securities to be sold hereunder and the Shares to be sold under the underwriting agreement dated the date hereof among the Company and the Common Stock Underwriters, (B) issuances of shares of Common Stock upon the conversion of any Securities, (C) any shares of Stock of the Company issued upon the exercise of options granted under Company Stock Plans or warrants described as outstanding in the Registration Statement, the Pricing Disclosure Package and the Prospectus, (D) any options and other awards granted under Company Stock Plans, (E) the filing by the Company of any registration statement on Form S-8 or a successor form thereto and (F) shares of Common Stock or other securities issued in connection with a transaction that includes a commercial relationship

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(including joint ventures, marketing or distribution arrangements, collaboration agreements or intellectual property license agreements) or any acquisition of assets or not less than a majority or controlling portion of the equity of another entity, provided that (x) the aggregate number of shares issued pursuant to this clause (F) shall not exceed 5.0% of the total number of outstanding shares of Common Stock immediately following the issuance and sale of the Underwritten Shares pursuant hereto and (y) the recipient of any such shares of Common Stock and securities issued pursuant to this clause (F) during the 90-day restricted period described above shall enter into an agreement substantially in the form of Exhibit A hereto.

(i) *Use of Proceeds.* The Company will apply the net proceeds from the sale of the Securities in all material respects as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus under the heading “Use of Proceeds”.

(j) *No Stabilization.* The Company will not take, directly or indirectly, without giving effect to activities by the Underwriters, any action designed to or that would reasonably be expected to cause or result in any stabilization or manipulation of the price of the Securities and will not take any action prohibited by Regulation M under the Exchange Act in connection with the distribution of the Securities contemplated hereby.

(k) *Underlying Securities.* The Company will reserve and keep available at all times, free of pre-emptive rights, a number of shares of Common Stock equal to the Maximum Number of Underlying Securities for the purpose of enabling the Company to satisfy all obligations to issue the Underlying Securities upon conversion of outstanding Securities. The Company will use its best efforts to list such number of Shares of Common Stock equal to the Maximum Number of Underlying Securities on the Nasdaq Market.

(l) *Reports.* During a period of two years from the date hereof, the Company will furnish to the Representatives, as soon as they are available, copies of all reports or other communications (financial or other) furnished to holders of the Securities, and copies of any reports and financial statements furnished to or filed with the Commission or any national securities exchange or automatic quotation system; provided the Company will be deemed to have furnished such reports and financial statements to the Representatives to the extent they are filed on the Commission’s Electronic Data Gathering, Analysis, and Retrieval system or any successor system.

(m) *Record Retention.* The Company will, pursuant to reasonable procedures developed in good faith, retain copies of each Issuer Free Writing Prospectus that is not filed with the Commission in accordance with Rule 433 under the Securities Act.

(n) *Emerging Growth Company.* The Company will promptly notify the Representative if the Company ceases to be an Emerging Growth Company at any time prior to the later of (i) completion of the distribution of Shares within the meaning of the Securities Act and (ii) completion of the 90-day restricted period referred to in Section 4(h) hereof.

5. Certain Agreements of the Underwriters. Each Underwriter hereby represents and agrees that:

(a) It has not used, authorized use of, referred to or participated in the planning for use of, and will not use, authorize use of, refer to or participate in the planning for use of, any “free writing prospectus”, as defined in Rule 405 under the Securities Act (which term includes use of any written information furnished to the Commission by the Company and not

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incorporated by reference into the Registration Statement and any press release issued by the Company) other than (i) a free writing prospectus that contains no “issuer information” (as defined in Rule 433(h)(2) under the Securities Act) that was not included (including through incorporation by reference) in the Preliminary Prospectus or a previously filed Issuer Free Writing Prospectus, (ii) any Issuer Free Writing Prospectus listed on Annex B or prepared pursuant to Section 3(c) or Section 4(c) above (including any electronic road show), or (iii) any free writing prospectus prepared by such underwriter and approved by the Company in advance in writing (each such free writing prospectus referred to in clauses (i) or (iii), an “Underwriter Free Writing Prospectus”).

(b) It has not and will not, without the prior written consent of the Company, use any free writing prospectus that contains the final terms of the Securities unless such terms have previously been included in a free writing prospectus filed with the Commission; *provided* that Underwriters may use a term sheet substantially in the form of Annex C hereto without the consent of the Company; *provided further* that any Underwriter using such term sheet shall notify the Company, and provide a copy of such term sheet to the Company, prior to, or substantially concurrently with, the first use of such term sheet.

(c) It is not subject to any pending proceeding under Section 8A of the Securities Act with respect to the offering (and will promptly notify the Company if any such proceeding against it is initiated during the Prospectus Delivery Period).

6. Conditions of Underwriters' Obligations. The obligation of each Underwriter to purchase the Underwritten Securities on the Closing Date or the Option Securities on the Additional Closing Date, as the case may be, as provided herein is subject to the performance by the Company of its covenants and other obligations hereunder and to the following additional conditions:

(a) *Registration Compliance; No Stop Order.* No order suspending the effectiveness of the Registration Statement shall be in effect, and no proceeding for such purpose or pursuant to Section 8A under the Securities Act shall be pending before or threatened by the Commission; the Prospectus and each Issuer Free Writing Prospectus shall have been timely filed with the Commission under the Securities Act (in the case of an Issuer Free Writing Prospectus, to the extent required by Rule 433 under the Securities Act) and in accordance with Section 4(a) hereof; and all requests by the Commission for additional information shall have been complied with to the reasonable satisfaction of the Representatives.

(b) *Representations and Warranties.* The representations and warranties of the Company contained herein shall be true and correct on the date hereof and on and as of the Closing Date or the Additional Closing Date, as the case may be; and the statements of the Company and its officers made in any certificates delivered pursuant to this Agreement shall be true and correct on and as of the Closing Date or the Additional Closing Date, as the case may be.

(c) *No Downgrade.* Subsequent to the earlier of (A) the Applicable Time and (B) the execution and delivery of this Agreement, if there are any debt securities or preferred stock of, or guaranteed by, the Company or any of its subsidiaries that are rated by a "nationally recognized statistical rating organization," as such term is defined in Section 3(a)(62) of the Exchange Act, (i) no downgrading shall have occurred in the rating accorded any such debt securities or preferred stock and (ii) no such organization shall have publicly announced that it has under surveillance or review, or has changed its outlook with respect to, its rating of any such debt securities or preferred stock (other than an announcement with positive implications of a possible upgrading).

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(d) *No Material Adverse Change.* No event or condition of a type described in Section 3(i) hereof shall have occurred or shall exist, which event or condition is not described in the Pricing Disclosure Package (excluding any amendment or supplement thereto) and the Prospectus (excluding any amendment or supplement thereto) and the effect of which in the judgment of the Representatives makes it impracticable or inadvisable to proceed with the offering, sale or delivery of the Securities on the Closing Date or the Additional Closing Date, as the case may be, on the terms and in the manner contemplated by this Agreement, the Pricing Disclosure Package and the Prospectus.

(e) *Officer's Certificate.* The Representatives shall have received on and as of the Closing Date or the Additional Closing Date, as the case may be, a certificate on behalf of the Company of the chief financial officer or chief accounting officer of the Company and one additional senior executive officer of the Company who is reasonably satisfactory to the Representatives (i) confirming that such officers have carefully reviewed the Registration Statement, the Pricing Disclosure Package and the Prospectus and, to the knowledge of such officers, the representations set forth in Sections 3(b) and 3(f) hereof are true and correct, (ii) confirming that the other representations and warranties of the Company in this Agreement are true and correct and that the Company has in all material respects complied with all agreements and satisfied all conditions on its part to be performed or satisfied hereunder at or prior to the Closing Date or the Additional Closing Date, as the case may be, and (iii) to the effect set forth in paragraphs (a), (c) and (d) above.

(f) *Comfort Letters.* On the date of this Agreement and on the Closing Date or the Additional Closing Date, as the case may be, PricewaterhouseCoopers LLP shall have furnished to the Representatives, at the request of the Company, letters, dated the respective dates of delivery thereof and addressed to the Underwriters, in form and substance reasonably satisfactory to the Representatives, containing statements and information of the type customarily included in accountants' "comfort letters" to underwriters with respect to the financial statements and certain financial information contained or incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus; provided, that the letter delivered on the Closing Date or the Additional Closing Date, as the case may be, shall use a "cut-off" date no more than three business days prior to such Closing Date or such Additional Closing Date, as the case may be.

(g) *Opinion and 10b-5 Statement of Counsel for the Company.* Wilmer Cutler Pickering Hale and Dorr LLP, counsel for the Company, shall have furnished to the Representatives, at the request of the Company, their written opinion and 10b-5 statement, dated the Closing Date or the Additional Closing Date, as the case may be, and addressed to the Underwriters, in form and substance reasonably satisfactory to the Representatives, to the effect set forth in Annex A-1 hereto.

(h) *Opinion of Intellectual Property Counsel for the Company.* Seth Fidel, Esq., special counsel for the Company with respect to intellectual property matters, shall have furnished to the Representatives, at the request of the Company, their written opinion, dated the Closing Date or the Additional Closing Date, as the case may be, and addressed to the Underwriters, in form and substance reasonably satisfactory to the Representatives, to the effect set forth in Annex A-2 hereto.

(i) *Opinion of Regulatory Counsel for the Company.* Hyman, Phelps & McNamara, P.C., special counsel for the Company with respect to regulatory matters shall have furnished to the Representatives, at the request of the Company, their written opinion, dated the Closing Date

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or the Additional Closing Date, as the case may be, and addressed to the Underwriters, in form and substance reasonably satisfactory to the Representatives, to the effect set forth in Annex A-3 hereto.

(j) *Opinion and 10b-5 Statement of Counsel for the Underwriters.* The Representatives shall have received on and as of the Closing Date or the Additional Closing Date, as the case may be, an opinion and 10b-5 statement of Davis Polk & Wardwell LLP, counsel for the Underwriters, with respect to such matters as the Representatives may reasonably request, and such counsel shall have received such documents and information as they may reasonably request to enable them to pass upon such matters.

(k) *No Legal Impediment to Issuance.* No action shall have been taken and no statute, rule, regulation or order shall have been enacted, adopted or issued by any federal, state or foreign governmental or regulatory authority that would, as of the Closing Date or the Additional Closing Date, as the case may be, prevent the issuance or sale of the Securities; and no injunction or order of any federal, state or foreign court shall have been issued that would, as of the Closing Date or the Additional Closing Date, as the case may be, prevent the issuance or sale of the Securities.

(l) *Good Standing.* The Representatives shall have received on and as of the Closing Date or the Additional Closing Date, as the case may be, satisfactory evidence of the good standing of the Company and its subsidiaries in their respective jurisdictions of organization and their good standing as foreign entities in such other jurisdictions as the Representatives may reasonably request, in each case in writing or any standard form of telecommunication from the appropriate governmental authorities of such jurisdictions.

(m) *Exchange Listing.* An application for the listing of a number of Shares of Common Stock equal to the Maximum Number of Underlying Securities shall have been approved for listing on the Nasdaq Market, subject to official notice of issuance.

(n) *Lock-up Agreements.* The “lock-up” agreements, each substantially in the form of Exhibit A hereto, between you and certain executive officers and directors of the Company relating to sales and certain other dispositions of shares of Common Stock or certain other securities, delivered to you on or before the date hereof, shall be in full force and effect on the Closing Date or Additional Closing Date, as the case may be.

(o) *CFO Certificate.* On the date of this Agreement and on the Closing Date or the Additional Closing Date, as the case may be, William A. Sullivan, Chief Financial Officer and Treasurer, shall have furnished to the Representatives, a Chief Financial Officer’s Certificate, dated the respective dates of delivery thereof, in form and substance reasonably satisfactory to the Representatives.

(p) *Additional Documents.* On or prior to the Closing Date or the Additional Closing Date, as the case may be, the Company shall have furnished to the Representatives such further certificates and documents as the Representatives may reasonably request.

All opinions, letters, certificates and evidence mentioned above or elsewhere in this Agreement shall be deemed to be in compliance with the provisions hereof only if they are in form and substance reasonably satisfactory to counsel for the Underwriters.

## 7. Indemnification and Contribution.

(a) *Indemnification of the Underwriters.* (1) The Company agrees to indemnify and hold harmless each Underwriter, its affiliates, directors and officers and each person, if any, who controls such Underwriter within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act, from and against any and all losses, claims, damages and liabilities (including, without limitation, reasonable legal fees and other reasonable expenses incurred in connection with any suit, action or proceeding or any claim asserted, as such fees and expenses are incurred), joint or several, that arise out of, or are based upon, (i) any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement or caused by any omission or alleged omission to state therein a material fact required to be stated therein or necessary in order to make the statements therein, not misleading, (ii) or any untrue statement or alleged untrue statement of a material fact contained in the Prospectus (or any amendment or supplement thereto), any Issuer Free Writing Prospectus, any “issuer information” filed or required to be filed pursuant to Rule 433(d) under the Securities Act, any Written Testing-the-Waters Communication or any Pricing Disclosure Package (including any Pricing Disclosure Package that has subsequently been amended), or caused by any omission or alleged omission to state therein a material fact necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading, in each case except insofar as such losses, claims, damages or liabilities arise out of, or are based upon, any untrue statement or omission or alleged untrue statement or omission made in reliance upon and in conformity with any information relating to any Underwriter furnished to the Company in writing by such Underwriter through the Representatives expressly for use therein, it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in subsection (b) below.

(b) *Indemnification of the Company.* Each Underwriter agrees, severally and not jointly, to indemnify and hold harmless the Company, its directors, its officers who signed the Registration Statement and each person, if any, who controls the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act to the same extent as the indemnity set forth in paragraph (a) above, but only with respect to any losses, claims, damages or liabilities that arise out of, or are based upon, any untrue statement or omission or alleged untrue statement or omission made in reliance upon and in conformity with any information relating to such Underwriter furnished to the Company in writing by such Underwriter through the Representatives expressly for use in the Registration Statement, the Prospectus (or any amendment or supplement thereto), any Issuer Free Writing Prospectus, any Written Testing-the-Waters Communication or any Pricing Disclosure Package, it being understood and agreed upon that the only such information furnished by any Underwriter consists of the following information in the Prospectus furnished on behalf of each Underwriter: the concession and reallowance figures appearing in the fourth paragraph and the information relating to stabilizing transactions contained in the ninth and thirteenth in each case under the caption “Underwriting”.

(c) *Notice and Procedures.* If any suit, action, proceeding (including any governmental or regulatory investigation), claim or demand shall be brought or asserted against any person in respect of which indemnification may be sought pursuant to either paragraph (a) or (b) above, such person (the “Indemnified Person”) shall promptly notify the person against whom such indemnification may be sought (the “Indemnifying Person”) in writing; provided that the failure to notify the Indemnifying Person shall not relieve it from any liability that it may have under paragraph (a) or (b) above except to the extent that it has been materially prejudiced (through the forfeiture of substantive rights or defenses) by such failure; and provided, further, that the failure to notify the Indemnifying Person shall not relieve it from any liability that it may have to an Indemnified Person otherwise than under paragraph (a) or (b) above. If any such proceeding shall be brought or asserted against an Indemnified Person and it shall have notified the Indemnifying Person thereof, the Indemnifying Person shall retain counsel reasonably satisfactory to the Indemnified Person (who shall not, without the consent of the Indemnified Person, be counsel to the

Indemnifying Person) to represent the Indemnified Person in such proceeding and shall pay the reasonable fees and expenses of such counsel related to such proceeding, as incurred. In any such proceeding, any Indemnified Person shall have the right to retain its own counsel, but the fees and expenses of such

counsel shall be at the expense of such Indemnified Person unless (i) the Indemnifying Person and the Indemnified Person shall have mutually agreed to the contrary; (ii) the Indemnifying Person has failed within a reasonable time to retain counsel reasonably satisfactory to the Indemnified Person; (iii) the Indemnified Person shall have reasonably concluded that there may be legal defenses available to it that are different from or in addition to those available to the Indemnifying Person; or (iv) the named parties in any such proceeding (including any impleaded parties) include both the Indemnifying Person and the Indemnified Person and representation of both parties by the same counsel would be inappropriate due to actual or potential differing interest between them. It is understood and agreed that the Indemnifying Person shall not, in connection with any proceeding or related proceedings in the same jurisdiction, be liable for the fees and expenses of more than one separate firm (in addition to any local counsel) for all Indemnified Persons, and that all such reasonable fees and expenses shall be paid or reimbursed as they are incurred. Any such separate firm for any Underwriter, its affiliates, directors and officers and any control persons of such Underwriter shall be designated in writing by J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated and any such separate firm for the Company, its directors, its officers who signed the Registration Statement and any control persons of the Company shall be designated in writing by the Company. The Indemnifying Person shall not be liable for any settlement of any proceeding effected without its written consent, but if settled with such consent or if there be a final judgment for the plaintiff, the Indemnifying Person agrees to indemnify each Indemnified Person from and against any loss or liability by reason of such settlement or judgment. Notwithstanding the foregoing sentence, if at any time an Indemnified Person shall have requested that an Indemnifying Person reimburse the Indemnified Person for fees and expenses of counsel as contemplated by this paragraph, the Indemnifying Person shall be liable for any settlement of any proceeding effected without its written consent if (i) such settlement is entered into (A) more than 60 days after receipt by the Indemnifying Person of such request and (B) more than 30 days after receipt by the Indemnifying Person of the proposed terms of such settlement and (ii) the Indemnifying Person shall not have reimbursed the Indemnified Person in accordance with such request prior to the date of such settlement. No Indemnifying Person shall, without the written consent of the Indemnified Person, effect any settlement of any pending or threatened proceeding in respect of which any Indemnified Person is or could have been a party and indemnification could have been sought hereunder by such Indemnified Person, unless such settlement (x) includes an unconditional release of such Indemnified Person, in form and substance reasonably satisfactory to such Indemnified Person, from all liability on claims that are the subject matter of such proceeding and (y) does not include any statement as to or any admission of fault, culpability or a failure to act by or on behalf of any Indemnified Person.

(d) *Contribution.* If the indemnification provided for in paragraphs (a) and (b) above is unavailable to an Indemnified Person or insufficient in respect of any losses, claims, damages or liabilities referred to therein, then each Indemnifying Person under such paragraph, in lieu of indemnifying such Indemnified Person thereunder, shall contribute to the amount paid or payable by such Indemnified Person as a result of such losses, claims, damages or liabilities (i) in such proportion as is appropriate to reflect the relative benefits received by the Company, on the one hand, and the Underwriters on the other, from the offering of the Securities, or (ii) if the allocation provided by clause (i) is not permitted by applicable law, in such proportion as is appropriate to reflect not only the relative benefits referred to in clause (i) but also the relative fault of the Company, on the one hand, and the Underwriters on the other, in connection with the statements or omissions that resulted in such losses, claims, damages or liabilities, as well as any other relevant equitable considerations. The relative benefits received by the Company, on the one hand, and the Underwriters on the other, shall be deemed to be in the same respective proportions as the net proceeds (before deducting expenses) received by the Company from the sale of the Securities and the total underwriting discounts and commissions received by the Underwriters in connection

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therewith, in each case as set forth in the table on the cover of the Prospectus, bear to the aggregate offering price of the Securities. The relative fault of the Company, on the one hand, and the Underwriters on the other, shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information supplied by the Company or by the Underwriters and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission.

(e) *Limitation on Liability.* The Company and the Underwriters agree that it would not be just and equitable if contribution pursuant to this Section 7 were determined by pro rata allocation (even if the Underwriters were treated as one entity for such purpose) or by any other method of allocation that does not take account of the equitable considerations referred to in paragraph (d) above. The amount paid or payable by an Indemnified Person as a result of the losses, claims, damages and liabilities referred to in paragraph (d) above shall be deemed to include, subject to the limitations set forth above, any reasonable legal or other reasonable expenses incurred by such Indemnified Person in connection with any such action or claim. Notwithstanding the provisions of this Section 7, in no event shall an Underwriter be required to contribute any amount in excess of the amount by which the total underwriting discounts and commissions received by such Underwriter with respect to the offering of the Securities exceeds the amount of any damages that such Underwriter has otherwise been required to pay by reason of such untrue or alleged untrue statement or omission or alleged omission. No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. The Underwriters' obligations to contribute pursuant to this Section 7 are several in proportion to their respective purchase obligations hereunder and not joint.

(f) *Non-Exclusive Remedies.* The remedies provided for in this Section 7 are not exclusive and shall not limit any rights or remedies which may otherwise be available to any Indemnified Person at law or in equity.

8. Effectiveness of Agreement. This Agreement shall become effective upon the execution and delivery hereof by the parties hereto.

9. Termination. This Agreement may be terminated in the absolute discretion of the Representatives, by notice to the Company, if after the execution and delivery of this Agreement and prior to the Closing Date or, in the case of the Option Securities, prior to the Additional Closing Date (i) trading generally shall have been suspended or materially limited on or by any of the New York Stock Exchange, NYSE Amex, the Nasdaq Market, the Chicago Board Options Exchange, the Chicago Mercantile Exchange or the Chicago Board of Trade; (ii) trading of any securities issued or guaranteed by the Company shall have been suspended on any exchange or in any over-the-counter market; (iii) a general moratorium on commercial banking activities shall have been declared by federal or New York State authorities; or (iv) there shall have occurred any outbreak or escalation of hostilities or any change in financial markets or any calamity or crisis, either within or outside the United States, that, in the judgment of the Representatives, is material and adverse and makes it impracticable or inadvisable to proceed with the offering, sale or delivery of the Securities on the Closing Date or the Additional Closing Date, as the case may be, on the terms and in the manner contemplated by this Agreement, the Pricing Disclosure Package and the Prospectus.

10. Defaulting Underwriter.

(a) If, on the Closing Date or the Additional Closing Date, as the case may be, any Underwriter defaults on its obligation to purchase the Securities that it has agreed to purchase hereunder on such date, the non-defaulting Underwriters may in their discretion arrange for the purchase of such

Securities by other persons satisfactory to the Company on the terms contained in this Agreement. If, within 36 hours after any such default by any Underwriter, the non-defaulting Underwriters do not arrange for the purchase of such Securities, then the Company shall be entitled to a further period of 36 hours within which to procure other persons satisfactory to the non-defaulting Underwriters to purchase such Securities on such terms. If other persons become obligated or agree to purchase the Securities of a defaulting Underwriter, either the non-defaulting Underwriters or the Company may postpone the Closing Date or the Additional Closing Date, as the case may be, for up to five full business days in order to effect any changes that in the opinion of counsel for the Company or counsel for the Underwriters may be necessary in the Registration Statement and the Prospectus or in any other document or arrangement, and the Company agrees to promptly prepare any amendment or supplement to the Registration Statement and the Prospectus that effects any such changes. As used in this Agreement, the term "Underwriter" includes, for all purposes of this Agreement unless the context otherwise requires, any person not listed in Schedule 1 hereto that, pursuant to this Section 10, purchases Securities that a defaulting Underwriter agreed but failed to purchase.

(b) If, after giving effect to any arrangements for the purchase of the Securities of a defaulting Underwriter or Underwriters by the non-defaulting Underwriters and the Company as provided in paragraph (a) above, the aggregate number of Securities that remain unpurchased on the Closing Date or the Additional Closing Date, as the case may be, does not exceed one-eleventh of the aggregate number of Securities to be purchased on such date, then the Company shall have the right to require each non-defaulting Underwriter to purchase the number of Securities that such Underwriter agreed to purchase hereunder on such date plus such Underwriter's pro rata share (based on the number of Securities that such Underwriter agreed to purchase on such date) of the Securities of such defaulting Underwriter or Underwriters for which such arrangements have not been made.

(c) If, after giving effect to any arrangements for the purchase of the Securities of a defaulting Underwriter or Underwriters by the non-defaulting Underwriters and the Company as provided in paragraph (a) above, the aggregate number of Securities that remain unpurchased on the Closing Date or the Additional Closing Date, as the case may be, exceeds one-eleventh of the aggregate amount of Securities to be purchased on such date, or if the Company shall not exercise the right described in paragraph (b) above, then this Agreement or, with respect to any Additional Closing Date, the obligation of the Underwriters to purchase Securities on the Additional Closing Date shall terminate without liability on the part of the non-defaulting Underwriters. Any termination of this Agreement pursuant to this Section 10 shall be without liability on the part of the Company, except that the provisions of Section 7 hereof shall not terminate and shall remain in effect.

(d) Nothing contained herein shall relieve a defaulting Underwriter of any liability it may have to the Company or any non-defaulting Underwriter for damages caused by its default.

11. Payment of Expenses.

(a) Whether or not the transactions contemplated by this Agreement are consummated or this Agreement is terminated, the Company will pay or cause to be paid all costs and expenses incident to the performance of its obligations hereunder, including without limitation, (i) the costs incident to the authorization, issuance, sale, preparation and delivery of the Securities and any taxes payable in that connection; (ii) the costs incident to the preparation, printing and filing under the Securities Act of the Registration Statement, the Preliminary Prospectus, any Issuer Free Writing Prospectus, any Pricing Disclosure Package and the Prospectus (including all exhibits, amendments and supplements thereto) and the distribution thereof; (iii) the costs of reproducing and distributing each of the Transaction Documents, (iv) the fees and expenses of the Company's counsel and independent accountants; (v) the reasonable fees and expenses incurred in connection with the registration or qualification of the Securities under the state or

foreign securities or blue sky laws of such jurisdictions as the Representatives may designate and the preparation, printing and distribution of a Blue Sky Memorandum (including the related fees and expenses of counsel for the Underwriters); (vi) any fees charged by rating agencies for rating the Securities; (vii) the fees and expenses of the Trustee and any paying agent (including related fees and expenses of any counsel to such parties); (viii) all expenses and application fees incurred in connection with any filing with, and clearance of the offering by, FINRA and the approval of the Securities for book-entry transfer by DTC; (ix) all expenses incurred by the Company in connection with any "road show" presentation to potential investors; and (x) all expenses and application fees related to the listing of the Underlying Securities on the Nasdaq Market.

(b) If (i) this Agreement is terminated pursuant to clause (i) or (ii) of Section 9, (ii) the Company for any reason fails to tender the Securities for delivery to the Underwriters or (iii) the Underwriters decline to purchase the Securities for any reason permitted under this Agreement (other than following termination of this Agreement pursuant to clause (iii) or (iv) of Section 9), the Company agrees to reimburse the Underwriters for all out-of-pocket costs and expenses (including the fees and expenses of their counsel) reasonably incurred by the Underwriters in connection with this Agreement and the offering contemplated hereby.

12. Persons Entitled to Benefit of Agreement. This Agreement shall inure to the benefit of and be binding upon the parties hereto and their respective successors and the officers and directors and any controlling persons referred to in Section 7 hereof. Nothing in this Agreement is intended or shall be construed to give any other person any legal or equitable right, remedy or claim under or in respect of this Agreement or any provision contained herein. No purchaser of Securities from any Underwriter shall be deemed to be a successor merely by reason of such purchase.

13. Survival. The respective indemnities, rights of contribution, representations, warranties and agreements of the Company and the Underwriters contained in this Agreement or made by or on behalf of the Company or the Underwriters pursuant to this Agreement or any certificate delivered pursuant hereto shall survive the delivery of and payment for the Securities and shall remain in full force and effect, regardless of any termination of this Agreement or any investigation made by or on behalf of the Company or the Underwriters.

14. Certain Defined Terms. For purposes of this Agreement, (a) except where otherwise expressly provided, the term "affiliate" has the meaning set forth in Rule 405 under the Securities Act; (b) the term "business day" means any day other than a day on which banks are permitted or required to be closed in New York City; and (c) the term "subsidiary" has the meaning set forth in Rule 405 under the Securities Act.

15. Miscellaneous.

(a) Authority of J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated. Any action by the Underwriters hereunder may be taken by J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated on behalf of the Underwriters, and any such

action taken by J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated shall be binding upon the Underwriters.

(b) *Notices.* All notices and other communications hereunder shall be in writing and shall be deemed to have been duly given if mailed or transmitted and confirmed by any standard form of telecommunication. Notices to the Underwriters shall be given to the Representatives c/o J.P. Morgan Securities LLC, 383 Madison Avenue, New York, New York 10179 (fax: (212) 622-8358), Attention: Equity Syndicate Desk; and Merrill Lynch, Pierce, Fenner & Smith Incorporated, One Bryant Park, New

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York, New York 10036 (fax: (646) 855-3073), Attention: Syndicate Department with a copy to ECM Legal. Notices to the Company shall be given to it at Merrimack Pharmaceuticals, Inc., One Kendall Square, Building 700, 2nd Floor, Cambridge, Massachusetts 02139, (fax:(617) 812-8122); Attention: Corporate Counsel.

(c) *Governing Law.* This Agreement and any claim, controversy or dispute arising under or related to this Agreement shall be governed by and construed in accordance with the laws of the State of New York applicable to agreements made and to be performed in such state.

(d) *Counterparts.* This Agreement may be signed in counterparts (which may include counterparts delivered by any standard form of telecommunication), each of which shall be an original and all of which together shall constitute one and the same instrument.

(e) *Amendments or Waivers.* No amendment or waiver of any provision of this Agreement, nor any consent or approval to any departure therefrom, shall in any event be effective unless the same shall be in writing and signed by the parties hereto.

(f) *Headings.* The headings herein are included for convenience of reference only and are not intended to be part of, or to affect the meaning or interpretation of, this Agreement.

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If the foregoing is in accordance with your understanding, please indicate your acceptance of this Agreement by signing in the space provided below.

Very truly yours,

MERRIMACK PHARMACEUTICALS, INC.

By: /s/ Robert Mulroy  
Name: Robert Mulroy  
Title: President & CEO

Accepted: July 11, 2013

J.P. MORGAN SECURITIES LLC  
MERRILL LYNCH, PIERCE, FENNER & SMITH  
INCORPORATED

For themselves and on behalf of the  
several Underwriters listed  
in Schedule 1 hereto.

J.P. MORGAN SECURITIES LLC

By: /s/ Michael Gaito  
Name: Michael Gaito  
Title: Managing Director

MERRILL LYNCH, PIERCE, FENNER & SMITH  
INCORPORATED

By: /s/ Sumit Khedekar  
Name: Sumit Khedekar  
Title: Managing Director

Schedule 1

Underwriter Principal Amount



J.P. Morgan Securities LLC	60,865,000
Merrill Lynch, Pierce, Fenner & Smith Incorporated	55,096,000
Cowen and Company, LLC	9,039,000
Total	<u>\$ 125,000,000</u>

Annex A-1

Form of Opinion of Counsel for the Company

Annex A-2

Form of Opinion for Company Intellectual Property Counsel

Annex A-3

FORM OF COMPANY COUNSEL REGULATORY OPINION

Annex B

a. **Pricing Disclosure Package**

Term sheet, substantially in the form attached as Annex C hereto.

Annex C

MERRIMACK PHARMACEUTICALS, INC.

Pricing Term Sheet

**PRICING TERM SHEET**  
**Dated as of July 11, 2013**

**Issuer Free Writing Prospectus**  
**Filed Pursuant to Rule 433**  
**Registration Statement No. 333-186369**  
**Relating to the**  
**Preliminary Prospectus Supplements dated July 10, 2013 to the**  
**Prospectus dated February 8, 2013**

**Merrimack Pharmaceuticals, Inc.**  
**Offering of**  
**\$125,000,000 aggregate principal amount of**  
**4.50% Convertible Senior Notes due 2020**  
**(the “Convertible Notes Offering”)**

**and**

**Offering of**  
**5,000,000 shares of Common Stock, par value \$0.01 per share**  
**(the “Common Stock Offering”)**

*This pricing term sheet relates to the Convertible Notes Offering and Common Stock Offering described below and should be read together with (i) the preliminary prospectus supplement dated July 10, 2013 (including the documents incorporated by reference therein and the base prospectus in respect thereof) relating to the Convertible Notes Offering (the “Convertible Notes Preliminary Prospectus Supplement”) and (ii) the preliminary prospectus supplement dated July 10, 2013 (including the documents incorporated by reference therein and the base prospectus in respect thereof) relating to the Common Stock Offering (the “Common Stock Preliminary Prospectus Supplement,” and, together with the Convertible Notes Preliminary Prospectus Supplement, the “Preliminary Prospectus Supplements”). The information in this term sheet supersedes the information in each Preliminary Prospectus*

### **Convertible Notes Offering and Common Stock Offering**

General:	The Convertible Notes Offering has been upsized from the previously announced size of \$75,000,000 aggregate principal amount of the Issuer's Notes (not including any exercise by the underwriters for the Convertible Notes Offering of their over-allotment option). See "Convertible Notes Offering" below. The Common Stock Offering has been downsized from the previously announced size of \$50,000,000 of the Issuer's Common Stock (not including any exercise by the underwriters for the Common Stock Offering of their option to purchase additional shares). See "Common Stock Offering" below.
Issuer:	Merrimack Pharmaceuticals, Inc.
Common Stock:	Common stock of the Issuer, par value \$0.01 per share (NASDAQ: MACK)
Trade Date:	July 12, 2013
Settlement Date:	July 17, 2013
Use of Proceeds:	<p>The Issuer estimates that the net proceeds from the Convertible Notes Offering, after deducting underwriting discounts and commissions and estimated offering expenses payable by the Issuer, will be approximately \$120.6 million (or approximately \$138.8 million if the underwriters for the Convertible Notes Offering exercise in full their over-allotment option).</p> <p>The Issuer estimates that the net proceeds from the Common Stock Offering,</p>

after deducting underwriting discounts and commissions and estimated offering expenses payable by the Issuer, will be approximately \$23.3 million (or approximately \$26.8 million if the underwriters for the Common Stock Offering exercise in full their option to purchase additional shares).

The Issuer expects to use the net proceeds from the Convertible Notes Offering and the Common Stock Offering to complete the clinical development of, seek marketing approval for and fund preapproval commercial efforts for MM-398 for the treatment of patients with metastatic pancreatic cancer whose cancer has progressed on treatment with the chemotherapy drug gemcitabine, to partially fund the clinical development of the Issuer's other clinical stage product candidates (including MM-398 for indications other than pancreatic cancer), to fund pre-clinical and research and development efforts and for other general corporate purposes.

### **Convertible Notes Offering**

Notes:	4.50% Convertible Senior Notes due 2020
Offering Size:	\$125,000,000 (or \$143,750,000 if the underwriters for the Convertible Notes Offering exercise their over-allotment option in full)
Maturity Date:	July 15, 2020, unless earlier repurchased or converted
Public Offering Price:	100% of principal amount, <i>plus</i> accrued interest, if any, from the Settlement Date
Underwriting Discounts and Commissions:	3.25% of principal amount
Interest Rate:	4.50% per annum accruing from the Settlement Date, payable semi-annually in arrears on January 15 and July 15 of each year, beginning on January 15, 2014
Conversion Premium:	25% above the Public Offering Price for the Common Stock Offering
Initial Conversion Rate:	160.0000 shares of Common Stock per \$1,000 principal amount of Notes
Initial Conversion Price:	\$6.25 per share of Common Stock
Increase in Conversion Rate Upon Conversion Upon a Make-Whole Fundamental Change:	The following table sets forth the number of additional shares by which the conversion rate will be increased per \$1,000 principal amount of Notes for each stock price and effective date set forth below.

Effective date	Stock price											
	\$5.00	\$5.50	\$6.25	\$6.75	\$7.50	\$10.00	\$12.50	\$15.00	\$17.50	\$20.00	\$22.50	\$25.00
July 17, 2013	40.0000	34.4551	27.5747	24.0824	19.9587	11.6378	7.2779	4.6677	2.9915	1.8758	1.1015	0.5984
July 15, 2014	40.0000	33.8735	26.7581	23.2095	19.0833	10.9868	6.8537	4.3975	2.8197	1.7666	1.0544	0.5760
July 15, 2015	40.0000	33.0858	25.6486	22.0228	17.8924	10.1041	6.2817	4.0353	2.5905	1.6214	0.9629	0.5192
July 15, 2016	40.0000	32.1509	24.2259	20.4738	16.3207	8.9376	5.5330	3.5662	2.2974	1.4391	0.8520	0.4532
July 15, 2017	40.0000	30.7585	22.1770	18.2681	14.1129	7.3576	4.5384	2.9466	1.9101	1.1976	0.7043	0.3654
July 15, 2018	40.0000	28.6175	19.1323	15.0483	10.9775	5.2828	3.2759	2.1635	1.4190	0.8918	0.5189	0.2570
July 15, 2019	40.0000	25.2840	14.3154	10.0714	6.3924	2.7172	1.7589	1.1964	0.7992	0.5053	0.2892	0.1278
July 15, 2020	40.0000	21.8181	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

The exact stock prices and effective dates may not be set forth in the table above, in which case:

- if the stock price is between two stock prices in the table or the effective date is between two effective dates in the table, the number of additional shares will be determined by a straight-line interpolation between the

number of additional shares set forth for the higher and lower stock prices and the earlier and later effective dates, as applicable, based on a 365-day year;

- if the stock price is greater than \$25.00 per share (subject to adjustment in the same manner as the stock prices set forth in the column headings of the table above as described under “Description of Notes—Conversion Rights—Conversion Rate Adjustments” in the Convertible Notes Preliminary Prospectus Supplement), no additional shares will be added to the conversion rate; and
- if the stock price is less than \$5.00 per share (subject to adjustment in the same manner as the stock prices set forth in the column headings of the table above as described under “Description of Notes—Conversion Rights—Conversion Rate Adjustments” in the Convertible Notes Preliminary Prospectus Supplement), no additional shares will be added to the conversion rate.

Notwithstanding the foregoing, in no event will the conversion rate per \$1,000 principal amount of Notes exceed 200.0000, subject to adjustment in the same manner as the conversion rate as set forth under “Description of Notes—Conversion Rights—Conversion Rate Adjustments” in the Convertible Notes Preliminary Prospectus Supplement.

CUSIP/ISIN: 590328AA8 / US590328AA86

Joint Book-Running Managers: J.P. Morgan Securities LLC  
Merrill Lynch, Pierce, Fenner & Smith  
Incorporated

Co-Manager: Cowen and Company, LLC

#### **Common Stock Offering**

Shares Offered: 5,000,000 shares of Common Stock (or 5,750,000 shares if the underwriters for the Common Stock Offering exercise their option to purchase 750,000 additional shares in full)

Public Offering Price: \$5.00 per share of Common Stock  
\$25,000,000 in the aggregate (or \$28,750,000 in the aggregate if the underwriters for the Common Stock Offering exercise their option to purchase 750,000 additional shares in full)

Shares of Common Stock Outstanding Following the Common Stock Offering: 101,428,154 shares (or 102,178,154 shares if the underwriters for the Common Stock Offering exercise their option to purchase 750,000 additional shares in full)

Underwriting Discount: \$0.30 per share of Common Stock

Joint Book-Running Managers: J.P. Morgan Securities LLC  
Merrill Lynch, Pierce, Fenner & Smith  
Incorporated

Lead Manager: Cowen and Company, LLC

Co-Managers: Oppenheimer & Co. Inc.  
Guggenheim Securities, LLC  
Brean Capital, LLC

#### **As Adjusted Financial Data:**

After giving effect to the Convertible Notes Offering and the Common Stock Offering, as of March 31, 2013, the Issuer’s as adjusted cash and cash equivalents and marketable securities and the Issuer’s capitalization would have been as follows:

<b>(Unaudited, in thousands)</b>	
Cash and cash equivalents	\$ 172,373
Marketable securities	58,252
Long-term debt, net	
Loans payable	\$ 34,076
4.50% convertible senior notes due 2020	125,000
Total long-term debt	159,076
Non-controlling (deficit) interest	(73)
Stockholders’ deficit:	
Preferred stock	—
Common stock	1,009
Additional paid-in capital	460,513
Accumulated other comprehensive loss	(20)

Accumulated deficit	(470,269)
Total stockholders' deficit	(8,767)
Total capitalization	<u>\$ 150,236</u>

After giving effect to the Common Stock Offering (but not taking into account the Convertible Notes Offering), the Issuer's net tangible book value at March 31, 2013 would have been \$(25.9) million, or \$(0.26) per share. This represents an immediate increase in net tangible book value of \$0.21 per share to existing stockholders and an immediate dilution of \$5.26 per share to investors in the Common Stock Offering.

**The Issuer has filed a registration statement (including a prospectus dated February 8, 2013 and the Preliminary Prospectus Supplements dated July 10, 2013) with the Securities and Exchange Commission, or SEC, for the Convertible Notes Offering and the Common Stock Offering, to which this communication relates. Before you invest, you should read the applicable Preliminary Prospectus Supplement, the accompanying prospectus and the other documents the Issuer has filed with the SEC for more complete information about the Issuer and the Convertible Notes Offering and the Common Stock Offering. You may get these documents for free by visiting EDGAR on the SEC web site at [www.sec.gov](http://www.sec.gov). Alternatively, the Issuer or any underwriter or dealer participating in the Convertible Notes Offering or the Common Stock Offering will arrange to send you the prospectus supplement and accompanying prospectus if you request them by contacting J.P. Morgan Securities LLC, Attn: Broadridge Financial Solutions, 1155 Long Island Avenue, Edgewood, New York 11717, 866-803-9204; or BofA Merrill Lynch, Attn: Prospectus Department, 222 Broadway, New York, NY 10038, 866-500-5408, or email: [dg.prospectus\\_requests@baml.com](mailto:dg.prospectus_requests@baml.com).**

ANY DISCLAIMERS OR OTHER NOTICES THAT MAY APPEAR BELOW ARE NOT APPLICABLE TO THIS COMMUNICATION AND SHOULD BE DISREGARDED. SUCH DISCLAIMERS OR OTHER NOTICES WERE AUTOMATICALLY GENERATED AS A RESULT OF THIS COMMUNICATION BEING SENT VIA BLOOMBERG OR ANOTHER EMAIL SYSTEM.

Annex D

Written Testing-the-Waters Communications

None

Exhibit A

FORM OF LOCK-UP AGREEMENT

, 2013

J.P. MORGAN SECURITIES LLC  
MERRILL LYNCH, PIERCE, FENNER & SMITH  
INCORPORATED

As Representatives of  
the several Underwriters listed in  
the Underwriting Agreements  
referred to below

c/o J.P. Morgan Securities LLC  
383 Madison Avenue  
New York, NY 10179

c/o Merrill Lynch, Pierce, Fenner & Smith  
Incorporated  
One Bryant Park  
New York, New York 10036

Re: Merrimack Pharmaceuticals, Inc. — Public Offering

Ladies and Gentlemen:

The undersigned understands that (i) J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated (together, the "Common Offering Representatives") propose to enter into an Underwriting Agreement (the "Common Stock Underwriting Agreement") with Merrimack Pharmaceuticals, Inc., a Delaware corporation (the "Company"), providing for the public offering (the "Public Offering of Common Stock") by the several underwriters to be named therein, including the Common Offering Representatives (the "Common Stock Underwriters"), of shares of common stock, par value \$0.01 per share, of the Company (the "Common Stock") and (ii) J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated (together, the "Convertible Offering Representatives" and, in their capacity as both Common Offering Representatives and Convertible Offering Representatives, the "Representatives") propose to enter into an Underwriting Agreement (the "Convertible Securities Underwriting Agreement" and together with the Common Stock Underwriting Agreement, the "Underwriting Agreements") with the Company, providing for the public offering (the "Public Offering of Convertible Securities" and, together with the Public Offering of Common Stock, the "Public Offerings") by the several underwriters to be named therein, including the Convertible Offering Representatives (together with the Common Stock Underwriters, the "Underwriters"), of convertible senior notes of the Company (the "Convertible Securities").

In consideration of the Underwriters' agreement to participate in the Public Offerings and to continue their efforts in connection with the Public Offerings, and for other good and valuable consideration, receipt of which is hereby acknowledged, the undersigned hereby agrees that, without the prior

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consent of J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated on behalf of the Underwriters, the undersigned will not, (i) during the period ending 90 days after the date of the final prospectus supplement relating to the Public Offering of Common Stock (the “Common Stock Restricted Period”) and (ii) during the period ending 90 days after the date of the final prospectus supplement relating to the Public Offering of Convertible Securities (the “Convertible Securities Restricted Period” and, together with the Common Stock Restricted Period, the “Restricted Period”), (1) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock or any securities convertible into or exercisable or exchangeable for Common Stock (including without limitation, Common Stock or such other securities which may be deemed to be beneficially owned by the undersigned in accordance with the rules and regulations of the Securities and Exchange Commission and securities which may be issued upon exercise of a stock option or warrant), or publicly disclose the intention to make any offer, sale, pledge or disposition, (2) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of the Common Stock or such other securities, whether any such transaction described in clause (1) or (2) above is to be settled by delivery of Common Stock or such other securities, in cash or otherwise or (3) make any demand for or exercise any right with respect to the registration of any shares of Common Stock or any security convertible into or exercisable or exchangeable for Common Stock, in each case other than (A) the conversion of the Convertible Securities into shares of Common Stock, (B) transfers of shares of Common Stock or such other securities as a bona fide gift or gifts, (C) transfers or dispositions of shares of Common Stock or such other securities to any trust for the direct or indirect benefit of the undersigned or the immediate family of the undersigned in a transaction not involving a disposition for value, (D) transfers or dispositions of shares of Common Stock or such other securities to any corporation, partnership, limited liability company or other entity all of the beneficial ownership interests of which are held by the undersigned or the immediate family of the undersigned in a transaction not involving a disposition for value, (E) transfers or dispositions of shares of Common Stock or such other securities by will, other testamentary document or intestate succession to the legal representative, heir, beneficiary or a member of the immediate family of the undersigned, and (F) distributions of shares of Common Stock or such other securities to partners, members or stockholders of the undersigned; provided that in the case of any transfer, disposition or distribution pursuant to clause (B), (C), (D), (E) or (F), each transferee, donee or distributee shall execute and deliver to the Representatives a lock-up letter in the form of this paragraph; and provided, further, that in the case of any transfer, disposition or distribution pursuant to clause (B), (C), (D) or (F), no filing by any party (donor, donee, transferor or transferee) under the Securities Exchange Act of 1934, as amended (the “Exchange Act”), or other public announcement reporting a reduction in the beneficial ownership of Common Stock held by the undersigned shall be required or shall be made voluntarily in connection with such transfer, disposition or distribution (other than a filing on a Form 5 made after the expiration of the Restricted Period). For purposes of this Letter Agreement, “immediate family” shall mean any relationship by blood, marriage or adoption, not more remote than first cousin. Furthermore, notwithstanding the restrictions imposed by this Letter Agreement, the undersigned may, without the prior written consent of J.P. Morgan Securities LLC or Merrill Lynch, Pierce, Fenner & Smith Incorporated, (i) exercise an option to purchase shares of Common Stock granted under any stock incentive plan or stock purchase plan of the Company, provided that the underlying shares of Common Stock shall continue to be subject to the restrictions on transfer set forth in this Letter Agreement, (ii) effect transactions pursuant to a trading plan established pursuant to Rule 10b5-1 under the Exchange Act in existence as of the date of this Letter Agreement, (iii) establish a trading plan pursuant to Rule 10b5-1 under the Exchange Act for the transfer of Common Stock, provided that such plan does not provide for any transfers of Common Stock during the Restricted Period and provided further that no filing with the United States Securities and Exchange Commission or other public announcement shall be required or voluntarily made by the undersigned or any other person in connection therewith and (iv) transfer or dispose of Convertible Securities or shares of Common Stock acquired on the open market following the Public Offerings, provided that no filing by any party under the Exchange Act or other public announcement

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reporting a reduction in the beneficial ownership of Common Stock held by the undersigned shall be required or shall be made voluntarily in connection with such transfer or disposition (other than a filing on Form 5 made after the expiration of the Restricted Period).

In furtherance of the foregoing, the Company, and any duly appointed transfer agent for the registration or transfer of the securities described herein, are hereby authorized to decline to make any transfer of securities if such transfer would constitute a violation or breach of this Letter Agreement.

The undersigned hereby represents and warrants that the undersigned has full power and authority to enter into this Letter Agreement. All authority herein conferred or agreed to be conferred and any obligations of the undersigned shall be binding upon the successors, assigns, heirs or personal representatives of the undersigned.

The undersigned understands that, if either J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated, on the one hand, or the Company, on the other hand, informs the other, prior to the execution of the Common Stock Underwriting Agreement, that it has determined not to proceed with the Public Offering of Common Stock, if the Common Stock Underwriting Agreement does not become effective by September 30, 2013, or if the Common Stock Underwriting Agreement (other than the provisions thereof which survive termination) shall terminate or be terminated prior to payment for and delivery of the securities to be sold thereunder, the undersigned shall be released from all obligations under this Letter Agreement with respect to the Common Stock Restricted Period, *provided*, that such release with respect to the Common Stock Restricted Period shall not affect the obligations imposed pursuant to this Letter Agreement with respect to the Convertible Securities Restricted Period. The undersigned understands that, if either J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated, on the one hand, or the Company, on the other hand, informs the other, prior to the execution of the Convertible Securities Underwriting Agreement, that it has determined not to proceed with the Public Offering of Convertible Securities, if the Convertible Securities Underwriting Agreement does not become effective by September 30, 2013, or if the Convertible Securities Underwriting Agreement (other than the provisions thereof which survive termination) shall terminate or be terminated prior to payment for and delivery of the securities to be sold thereunder, the undersigned shall be released from all obligations under this Letter Agreement with respect to the Convertible Securities Restricted Period, *provided*, that such release with respect to the Convertible Securities Restricted Period shall not affect the obligations imposed pursuant to this Letter Agreement with respect to the Common Stock Restricted Period. The undersigned understands that the Underwriters are entering into the Underwriting Agreements and proceeding with the Public Offerings in reliance upon this Letter Agreement.

This Letter Agreement and any claim, controversy or dispute arising under or related to this Letter Agreement shall be governed by and construed in accordance with the laws of the State of New York, without regard to the conflict of laws principles thereof.

Very truly yours,

[NAME OF STOCKHOLDER]

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

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July 11, 2013

Merrimack Pharmaceuticals, Inc.  
One Kendall Square, Suite B7201  
Cambridge, MA 02139Re: Registration Statement on Form S-3

Ladies and Gentlemen:

This opinion is being furnished to you in connection with (i) the Registration Statement on Form S-3 (File No. 333-186369) (the "Registration Statement") filed by Merrimack Pharmaceuticals, Inc., a Delaware corporation (the "Company"), with the Securities and Exchange Commission (the "Commission") for the purpose of registering with the Commission under the Securities Act of 1933, as amended (the "Securities Act"), shares of the Company's common stock, \$0.01 par value per share (the "Common Stock"), which may be issued from time to time on a delayed or continuous basis pursuant to Rule 415 under the Securities Act at an indeterminate initial offering price, as set forth in the Registration Statement and the prospectus contained therein (the "Base Prospectus"); and (ii) the prospectus supplement, dated July 11, 2013 (the "Prospectus Supplement" and together with the Base Prospectus, the "Prospectus") relating to the issuance and sale pursuant to the Registration Statement up to 5,750,000 shares of Common Stock (the "Shares") (including 750,000 shares of Common Stock issuable by the Company upon exercise of an over-allotment option granted by the Company).

The Shares are to be issued and sold by the Company pursuant to the underwriting agreement, dated as of July 11, 2013 (the "Underwriting Agreement"), among the Company and the several Underwriters named in Schedule I to the Underwriting Agreement for whom J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated are acting as Representatives, the form of which is being filed with the Commission as Exhibit 1.1 to the Company's Current Report on Form 8-K, filed on the date hereof.

We are acting as counsel for the Company in connection with the issue and sale by the Company of the Shares pursuant to the Underwriting Agreement. We have examined a signed copy of the Registration Statement and a copy of the Prospectus Supplement, each as filed with the Commission. We have also examined and relied upon the Underwriting Agreement, records of

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Beijing Berlin Boston Brussels Frankfurt London Los Angeles New York Oxford Palo Alto Waltham Washington

meetings of the Board of Directors of the Company the stockholders of the Company as provided to us by the Company, including committees thereof, of the Company as provided to us by the Company, the Restated Certificate of Incorporation and the Amended and Restated By-Laws of the Company, certificates of representatives of the Company and such other documents as we have deemed necessary for purposes of rendering the opinion hereinafter set forth.

In our examination of the documents described above, we have assumed the genuineness of all signatures, the legal capacity of all individual signatories, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as copies, the authenticity of the originals of such latter documents and the completeness and accuracy of the corporate minute books of the Company provided to us by the Company.

We express no opinion herein as to the laws of any state or jurisdiction other than the General Corporation Law of the State of Delaware. We also express no opinion herein with respect to compliance by the Company with securities or "blue sky" laws of any state or other jurisdiction of the United States or of any foreign jurisdiction. In addition, we express no opinion and make no statement herein with respect to the antifraud laws of any jurisdiction.

Based upon and subject to the foregoing, we are of the opinion that the Shares have been duly authorized for issuance and, when issued and paid for in accordance with the terms and conditions of the Underwriting Agreement, the Shares will be validly issued, fully paid and non-assessable.

It is understood that this opinion is to be used only in connection with the offer and sale of the Securities while the Registration Statement is in effect.

Please note that we are opining only as to the matters expressly set forth herein, and no opinion should be inferred as to any other matters. This opinion is based upon currently existing statutes, rules, regulations and judicial decisions, and we disclaim any obligation to advise you of any change in any of these sources of law or subsequent legal or factual developments which might affect any matters or opinions set forth herein.

We hereby consent to the filing of this opinion in accordance with the requirements of Item 601(b)(5) of Regulation S-K under the Securities Act with the Commission as an exhibit to the Current Report on Form 8-K to be filed by the Company on the date hereof in connection with the issue and sale of the Shares and to the use of our name in the Prospectus Supplement under the caption "Legal Matters." In giving such consent, we do not hereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission.

Very truly yours,

By: /s/ Brian A. Johnson  
Brian A. Johnson, a Partner



July 11, 2013

+1 212 230 8800 (t)  
 +1 212 230 8888 (f)  
 wilmerhale.com

Merrimack Pharmaceuticals, Inc.  
 One Kendall Square, Suite B7201  
 Cambridge, MA 02139

Re: Registration Statement on Form S-3

Ladies and Gentlemen:

This opinion is furnished to you in connection with the public offering by Merrimack Pharmaceuticals, Inc., a Delaware corporation (the "Company"), up to \$143,750,000 aggregate principal amount of the Company's 4.50% Convertible Senior Notes due 2020 (the "Notes") (including \$18,750,000 principal amount of the Notes issuable by the Company upon exercise of an over-allotment option granted by the Company), and the shares of the Company's common stock, \$0.01 par value per share (the "Shares" and, together with the Notes, the "Securities") issuable upon conversion of the Notes, pursuant to (i) a Registration Statement on Form S-3 (File No. 333-186369) filed by the Company with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Securities Act"), on February 1, 2013 (the "Registration Statement") and the prospectus contained therein (the "Base Prospectus") and (ii) the prospectus supplement dated July 11, 2013, filed with the Commission pursuant to Rule 424(b) under the Securities Act relating to the issuance and sale pursuant to the Registration Statement of the Notes (the "Prospectus Supplement" and together with the Base Prospectus, the "Prospectus"). The Registration Statement was declared effective by the Commission on February 8, 2013 and provides for the issuance and sale of securities of the Company from time to time on a delayed or continuous basis pursuant to Rule 415 under the Securities Act in one or more offerings for an aggregate initial offering price of up to \$200,000,000.

The Notes are to be issued and sold by the Company pursuant to (i) the underwriting agreement, dated as of July 11, 2013 (the "Underwriting Agreement"), among the Company and the several Underwriters named in Schedule I to the Underwriting Agreement for whom J.P. Morgan Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated are acting as Representatives, the form of which is being filed with the Commission as Exhibit 1.2 to the Company's Current Report on Form 8-K, filed on the date hereof and (ii) an indenture (the "Base Indenture") between the Company and Wells Fargo Bank, National Association, as trustee (the "Trustee"), and a First Supplemental Indenture (the "Supplemental Indenture") between the Company and the Trustee (the Base Indenture, as so amended and supplemented by the Supplemental Indenture, the "Indenture").

We are acting as counsel for the Company in connection with the issue and sale by the Company of the Securities. We have examined a signed copy of the Registration Statement and a copy of the Prospectus Supplement, each as filed with the Commission. We have also examined and

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 Beijing Berlin Boston Brussels Frankfurt London Los Angeles New York Oxford Palo Alto Waltham Washington

relied upon records of meetings of the Board of Directors of the Company and the stockholders of the Company as provided to us by the Company, the Restated Certificate of Incorporation of the Company and the Amended and Restated By-Laws of the Company, certificates of representatives of the Company and such other documents as we have deemed necessary for purposes of rendering the opinions hereinafter set forth.

In our examination of the documents described above, we have assumed the genuineness of all signatures, the legal capacity of all individual signatories, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as copies, the authenticity of the originals of such latter documents and the completeness and accuracy of the corporate minute books of the Company provided to us by the Company. We have also relied as to certain matters on information obtained from public officials and officers of the Company.

We have assumed the due execution and delivery, pursuant to due authorization, of each of the Base Indenture and the Supplemental Indenture by the Trustee, that the Trustee has all requisite power and authority to effect the transactions contemplated by each of the Base Indenture and the Supplemental Indenture, that the Trustee or an authenticating agent for the Trustee has duly authenticated the Securities pursuant to the Indenture and that the Trustee shall have been qualified under the Trust Indenture Act of 1939, as amended. We have also assumed that each of the Base Indenture and the Supplemental Indenture is the valid and binding obligation of the Trustee and is enforceable against the Trustee in accordance with its terms. We are expressing no opinion herein as to the application of or compliance with any foreign, federal or state law or regulation to the power, authority or competence of any party, other than the Company, to the Indenture.

We have assumed for purposes of our opinions below that no authorization, approval or other action by, and no notice to or filing with, any governmental authority or regulatory body or any other third party is required for the due execution, delivery or performance by the Company of the Indenture or the Notes or, if any such authorization, approval, consent, action, notice or filing is required, it will have been duly obtained, taken, given or made and will be in full force and effect.

Our opinions below are qualified to the extent that they may be subject to or affected by (i) applicable bankruptcy, insolvency, reorganization, moratorium, usury, fraudulent conveyance or similar laws relating to or affecting the rights or remedies of creditors generally; (ii) statutory or decisional law concerning recourse by creditors to security in the absence of notice or hearing; (iii) duties and standards imposed on creditors and parties to contracts, including, without limitation, requirements of good faith, reasonableness and fair dealing; and (iv) general equitable

principles. We express no opinion as to the enforceability of any provision of any of the Notes that purports to select the laws by which it or any other agreement or instrument is to be governed. Furthermore, we express no opinion as to the availability of any equitable or specific remedy upon any breach of any of the agreements as to which we are opining herein, or any of the agreements, documents or obligations referred to therein, or to the successful assertion of any equitable defenses, inasmuch as the availability of such remedies or the success of any equitable defenses may be subject to the discretion of a court. In addition, we express no opinion with respect to the enforceability of any provision of the Notes requiring the payment of interest on overdue interest.

We also express no opinion herein as to the laws of any state or jurisdiction other than the state laws of the State of New York and the General Corporation Law of the State of Delaware. We also express no opinion herein with respect to compliance by the Company with securities or “blue sky” laws of any state or other jurisdiction of the United States or of any foreign jurisdiction. In addition, we express no opinion and make no statement herein with respect to the antifraud laws of any jurisdiction.

We also express no opinion herein as to any provision of any agreement (i) that may be deemed to or construed to waive any right of the Company; (ii) to the effect that rights and remedies are not exclusive, that every right or remedy is cumulative and may be exercised in addition to or with any other right or remedy and does not preclude recourse to one or more other rights or remedies; (iii) relating to the effect of invalidity or unenforceability of any provision of such agreement on the validity or enforceability of any other provision thereof; (iv) that is in violation of public policy; (v) relating to indemnification and contribution with respect to securities law matters; (vi) which provides that the terms of any such agreement may not be waived or modified except in writing; (vii) purporting to indemnify any person against his, her or its own negligence or intentional misconduct; (viii) requiring the payment of penalties, consequential damages or liquidated damages or (ix) relating to choice of law or consent to jurisdiction.

For purposes of our opinion, we have assumed that (i) at the time of offer, issuance and sale of any Securities, no stop order suspending the Registration Statement’s effectiveness will have been issued and remain in effect; (ii) the Shares to be issued upon conversion of the Notes shall be issued in accordance with the terms of the Notes, the Indenture and the resolutions of the Board of Directors; and (iii) the Company will remain a Delaware corporation.

Based upon and subject to the foregoing, we are of the opinion that:

1. With respect to the Notes, upon (i) due execution and delivery of the Indenture, on behalf of the Company and the Trustee named therein, (ii) due authentication by the Trustee,

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and (iii) due execution, issuance, and delivery of the Notes against payment of the consideration therefor specified in the Underwriting Agreement and otherwise in accordance with the Indenture and the Underwriting Agreement, the Notes will constitute valid and binding obligations of the Company, enforceable against the Company in accordance with their terms; and

2. With respect to the Shares issuable upon the conversion of the Notes, upon (i) valid issuance of the Notes and (ii) due exercise of applicable conversion rights in accordance with the terms of the Notes, the Shares will be validly issued, fully paid and nonassessable.

It is understood that this opinion is to be used only in connection with the offer and sale of the Securities while the Registration Statement is in effect.

Please note that we are opining only as to the matters expressly set forth herein, and no opinion should be inferred as to any other matters. This opinion is based upon currently existing statutes, rules, regulations and judicial decisions, and we disclaim any obligation to advise you of any change in any of these sources of law or subsequent legal or factual developments which might affect any matters or opinions set forth herein.

We hereby consent to the filing of this opinion in accordance with the requirements of Item 601(b)(5) of Regulation S-K under the Securities Act with the Commission as an exhibit to the Current Report on Form 8-K to be filed by the Company on the date hereof in connection with the issue and sale of the Notes and to the use of our name therein and in the related Prospectus Supplement under the caption “Legal Matters.” In giving such consent, we do not hereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission.

Very truly yours,

WILMER CUTLER PICKERING  
HALE AND DORR LLP

By: /s/ Brian A. Johnson  
Brian A. Johnson, a Partner

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Amendment, Consent and Waiver

Pursuant to the Loan and Security Agreement, dated as of November 8, 2012 (the “Loan Agreement”) by and among Merrimack Pharmaceuticals, Inc., a Delaware corporation (the “Corporation”), and Hercules Technology Growth Capital, Inc., a Maryland corporation (the “Lender”), the Corporation has agreed not to create, incur, assume or be or remain liable with respect to any Indebtedness, subject to certain exceptions, and has granted certain participation rights to the undersigned. Capitalized terms used herein and not otherwise defined shall have the meanings ascribed to such terms in the Loan Agreement.

The Corporation intends to incur Indebtedness through the offering, issuance and sale pursuant to an underwritten public offering, including any over-allotment option in connection therewith (the “Offering”), of up to \$200 million aggregate principal amount of the Corporation’s senior unsecured notes (the “Notes”) substantially to the effect set forth in the Description of Notes (“Description of Notes”) contained in the Prospectus Supplement filed with the SEC on the date hereof, which Description of Notes shall be completed at the closing of the Note Issuance with the Specified Provisions to be determined by the Corporation. “Specified Provisions” means the provisions in the Description of Notes which are blank and will be inserted hereafter as set forth on Schedule 1 hereto. The Notes are convertible in whole or in part into shares of the Corporation’s common stock, \$.01 par value per share (the “Common Stock”) (such consideration, together with any cash in lieu of fractional shares, the “Conversion Consideration”), and after the maturity of the Secured Obligations, the Notes are convertible in whole or in part into Common Stock, cash and/or a combination thereof. The Corporation shall be required to make regularly scheduled semi-annual payments of interest (including any additional interest payable at the Corporation’s election for certain reporting defaults under the indenture for the Notes in an amount not to exceed 0.25% per annum) on such Notes (the “Interest Payments”).

**Please note that pursuant to Section 11.12 of the Loan Agreement, the Lender is required to maintain in the strictest confidence all information about the Offering in general and this Amendment, Consent and Waiver in particular, which such information and materials in connection therewith is confidential. Any disclosure relating to the Offering, or use of such information for any purpose other than specifically with respect to the matters described herein, including for the purpose of trading in the Corporation’s securities, could jeopardize the Corporation’s plans for the Offering and be a violation of securities laws.**

Now therefor, for good and valuable consideration the sufficiency and receipt of which are hereby acknowledged and confirmed, the undersigned hereby agree as follows:

1. Consent to the Offering and Related Incurrence of Indebtedness; Consent to the Interest Payments; Consent to Conversion Consideration.

Pursuant to Section 7.4 of the Loan Agreement, the Corporation has agreed not to create, incur, assume or be or remain liable with respect to any Indebtedness, subject to certain exceptions. The Lender hereby consents to the Offering, the incurrence of Indebtedness in connection therewith and the payment of Interest Payments and Conversion Consideration with

respect to the Notes, and irrevocably waives the provisions of Section 7.4 of the Loan Agreement and any other applicable provision of the Loan Documents with respect thereto.

2. Participation Rights and Related Notice.

Pursuant to Section 8 of the Loan Agreement, the Corporation has granted the undersigned certain rights to acquire shares of Common Stock in a private placement to be consummated concurrently with the closing of a Subsequent Financing (the “Participation Right”). Each of the undersigned acknowledges that such Participation Right is not applicable to the Offering and/or the Corporation’s contemporaneous offering of Common Stock and/or the issuance of shares of Common Stock upon conversion of the Notes.

3. Amendment to Section 7.4

Section 7.4 of the Loan Agreement is hereby modified by adding the words “(other than the “Notes” as defined in the Amendment, Consent and Waiver dated July 10, 2013 by and between the Borrower and the Lender)” after the words “or take any actions which impose on Borrower an obligation to prepay any Indebtedness.”

4. Amendment to Section 9.8.

Section 9.8 of the Loan Agreement is hereby modified by adding the words “which default (a) results in such Indebtedness becoming or being declared due and payable prior to the stated maturity thereof or (b) would permit at such time (because all notice and grace periods have lapsed) such Indebtedness to be declared due and payable prior to the stated maturity thereof” after the words “any Indebtedness in excess of \$1,000,000.”

5. Further Covenants.

The Corporation agrees not to (a) amend, restate, modify and/or supplement the Notes or the indenture relating to the Notes (the “Indenture Documents”), in a manner adverse to the Lender (including without limitation, shortening the maturity date, increasing the interest rate, revising the prepayment, events of default, fundamental change and/or repurchase event or similar concept) or securing or granting any liens with respect to the Indenture Documents), it being understood and agreed for the avoidance of doubt that this clause (a) shall (i) only apply to amendments, restatements, modifications or supplements to the Indenture Documents after the last date of original issuance of the Notes (and shall not apply to any increase in the principal amount thereof up to an aggregate principal amount of \$200 million), and (ii) not impair the ability of the Corporation to amend, restate, modify and/or supplement the Indenture Documents to conform to the “Description of Debt Securities” section of the base prospectus dated as of February 8, 2013 and filed by the Corporation with the SEC and the Description of Notes as supplemented by the Specified Provisions, or (b) make any cash payments (other than the Interest Payments (as long as no Event of Default has occurred and is continuing) and payment of the Conversion Consideration) under the Indenture Documents, without Lender’s consent. Furthermore, the occurrence of any fundamental change (including any change of control) under the Indenture Documents which requires the Corporation to make an offer to repurchase the Notes, and/or event of default (or similar concept) under the Indenture Documents shall be an immediate Event of Default under the Loan Documents.

6. Effectiveness.

The undersigned hereby agree that this Amendment, Consent and Waiver shall be effective for all purposes upon the execution and delivery thereof by the parties hereto (by pdf, telecopy or by courier).

[Remainder of page intentionally left blank]

IN WITNESS WHEREOF, the parties have caused this Amendment, Consent and Waiver to be executed as of the 10<sup>th</sup> day of July, 2013.

HERCULES TECHNOLOGY CAPITAL, INC.,  
a Maryland corporation

By: /s/ Ben Bang  
Name: Ben Bang  
Title: Senior Counsel

MERRIMACK PHARMACEUTICALS, INC.  
a Delaware corporation

By: /s/ Robert Mulroy  
Name: Robert Mulroy  
Title: President and Chief Executive Officer

Schedule 1

Provisions with respect to:

- Interest rate
- Offering size (aggregate principal amount up to \$200 million)
- Maturity date (must be greater than 4 years)
- Public offering price
- Underwriting discounts and commissions
- Conversion premium
- Initial conversion rate
- Initial conversion price
- Increase in conversion rate upon conversion upon a make-whole fundamental change (including related tabular and narrative disclosure)
- CUSIP/ISIN
- Settlement Date



July 11, 2013

## **Merrimack Prices Concurrent Public Offerings of 5,000,000 Shares of Common Stock and \$125,000,000 Aggregate Principal Amount of Convertible Senior Notes**

CAMBRIDGE, Mass., July 11, 2013 (GLOBE NEWSWIRE) — Merrimack Pharmaceuticals, Inc. (NASDAQ: MACK) today announced that it has priced concurrent public offerings of 5,000,000 shares of its common stock at a price to the public of \$5.00 per share and \$125,000,000 aggregate principal amount of its 4.50% convertible senior notes due 2020 (the “Notes”), in each case, offered pursuant to Merrimack’s effective Registration Statement on Form S-3 (File No. 333-186369) (the “Registration Statement”) and a related prospectus filed with the Securities and Exchange Commission (the “SEC”). Merrimack has granted to the underwriters in the common stock offering an option, exercisable for 30 days, to purchase up to an additional 750,000 shares of its common stock and granted to the underwriters in the Notes offering an option, exercisable for 30 days, to purchase up to an additional \$18,750,000 in aggregate principal amount of Notes.

Merrimack expects to use the net proceeds from both offerings to complete the clinical development of, seek marketing approval for and fund pre-approval commercial efforts for MM-398 for the treatment of patients with metastatic pancreatic cancer whose cancer has progressed on treatment with the chemotherapy drug gemcitabine, to partially fund the clinical development of other clinical stage product candidates (including MM-398 for indications other than pancreatic cancer), to fund pre-clinical and research and development efforts and for other general corporate purposes.

The Notes will bear interest at a rate of 4.50% per year, payable semiannually on January 15 and July 15 of each year, beginning January 15, 2014. The Notes will mature on July 15, 2020. The Notes will be convertible, under certain circumstances and during certain periods, at the option of the holder, based on an initial conversion rate of 160.0000 shares of common stock per \$1,000 principal amount of Notes, which is equivalent to an initial conversion price of \$6.25 per share of common stock, subject to adjustment in certain circumstances. The initial conversion price represents a conversion premium of 25% over the public offering price in the common stock offering. Following certain corporate events that occur prior to the maturity date, Merrimack will increase the conversion rate for a holder who elects to convert its Notes in connection with such a corporate event in certain circumstances. Upon any conversion of the Notes that occurs while Merrimack’s indebtedness to Hercules Technology Growth Capital, Inc. (“Hercules”), under the Loan and Security Agreement dated November 8, 2012 between Merrimack and Hercules, remains outstanding, the Notes will be settled in shares of Merrimack’s common stock. Following the repayment and satisfaction in full of Merrimack’s obligations to Hercules under the Loan and Security Agreement, upon any conversion of the Notes the Notes may be settled, at Merrimack’s election, in cash, shares of Merrimack’s common stock or a combination of cash and shares of Merrimack’s common stock.

J. P. Morgan Securities LLC and BofA Merrill Lynch are acting as joint book-running managers of these proposed offerings. Cowen and Company, LLC is acting as lead manager of the proposed common stock offering and co-manager of the proposed Notes offering. Oppenheimer & Co. Inc., Guggenheim Securities, LLC and Brean Capital, LLC are acting as co-managers of the proposed common stock offering. The common stock offering and the Notes offering are being conducted as separate public offerings by means of separate prospectus supplements filed as part of the Registration Statement. The common stock offering is not contingent upon the completion of the Notes offering, and the Notes offering is not contingent upon the completion of the common stock offering. Merrimack expects to

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close these offerings on or about July 17, 2013, and each closing is subject to satisfaction of customary closing conditions. Before investing in either offering, interested parties may read the prospectus supplement and the accompanying prospectus for the relevant offering and the other documents Merrimack has filed with the SEC, which are incorporated by reference in the prospectus supplements and the accompanying prospectus and provide more complete information about Merrimack and the offerings. Copies of the prospectus supplements and the accompanying prospectus relating to each offering may be obtained from J.P. Morgan Securities LLC, c/o Broadridge Financial Solutions, 1155 Long Island Avenue, Edgewood, NY 11717, telephone (toll-free): 866-803-9204 or BofA Merrill Lynch, 222 Broadway, New York, NY 10038, Attention: Prospectus Department, e-mail: dg.prospectus\_requests@baml.com. Electronic copies of the prospectus supplements may be obtained by visiting EDGAR on the SEC’s website at <http://www.sec.gov/>.

This announcement does not constitute an offer to sell, or a solicitation of an offer to buy, nor shall there be any sale of these securities in any state or jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such state or jurisdiction. Any offer, if at all, will be made only by means of a prospectus supplement and the accompanying prospectus, forming a part of the Registration Statement.

### **About Merrimack**

Merrimack is a biopharmaceutical company discovering, developing and preparing to commercialize innovative medicines paired with companion diagnostics for the treatment of cancer. Merrimack applies its systems biology-based approach to biomedical research throughout the research and development process. Merrimack currently has six oncology therapeutics in clinical development.

### **Forward-looking statements**

To the extent that statements contained in this press release are not descriptions of historical facts, they are forward-looking statements reflecting the current beliefs and expectations of management made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995, as amended. Forward-looking statements include any statements about Merrimack’s strategy, future operations, future financial position and future expectations and plans and prospects for Merrimack, and any other statements containing the words “anticipate,” “believe,” “estimate,” “expect,” “intend,” “may,” “plan,” “predict,” “project,” “target,” “potential,” “will,” “would,” “could,” “should,” “continue,” and similar expressions. In this press release, Merrimack’s forward-looking statements include statements about whether or not Merrimack will consummate the common stock offering and/or the Notes offering and the anticipated use of the proceeds from the common stock offering and the Notes offering. Such forward-looking statements involve substantial risks and uncertainties that could cause Merrimack’s clinical development programs, future results, performance or achievements to differ significantly from those expressed or implied by the forward-looking statements. Merrimack undertakes no obligation to update or revise any forward-looking statements. Forward-looking statements

should not be relied upon as representing Merrimack's views as of any date subsequent to the date hereof. For a further description of the risks and uncertainties that could cause actual results to differ from those expressed in these forward-looking statements, as well as risks relating to Merrimack's business in general, see the "Risk Factors" section of Merrimack's Quarterly Report on Form 10-Q filed with the SEC on May 13, 2013 and other reports Merrimack files with the SEC.

Investor & Media Contact: Kathleen Petrozzelli Gallagher, Corporate Communications, Merrimack, 617-441-1043, [kgallagher@merrimackpharma.com](mailto:kgallagher@merrimackpharma.com)

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