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

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**FORM 8-K**

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**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 11, 2018**

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**ASSEMBLY BIOSCIENCES, INC.**

(Exact name of registrant as specified in its charter)

**Delaware**  
(State or other jurisdiction of  
incorporation)

**001-35005**  
(Commission  
File Number)

**20-8729264**  
(I.R.S. Employer  
Identification No.)

**11711 N. Meridian St., Suite 310**  
**Carmel, Indiana 46032**  
(Address of principal executive offices, including zip code)

**(317) 210-9311**  
(Registrant's telephone number, including area code)

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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:

- 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))

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 or Rule 12b-2 of the Securities Exchange Act of 1934.

Emerging growth company

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

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### Item 1.01. Entry into a Material Definitive Agreement.

On July 11, 2018, Assembly Biosciences, Inc. (the “Company”) entered into an underwriting agreement (the “Underwriting Agreement”) with Jefferies LLC, Leerink Partners LLC and William Blair & Company, L.L.C., as representatives of the several underwriters listed in Schedule 1 thereto (the “Underwriters”), in connection with the issuance and sale of 4,000,000 shares of the Company’s common stock, par value \$0.001 per share (the “Common Stock”), at a public offering price of \$36.00 per share (the “Offering”). In addition, pursuant to the Underwriting Agreement, the Company granted the Underwriters a 30-day option to purchase up to 600,000 additional shares of Common Stock on the same terms, and the Underwriters exercised the option in full on July 12, 2018 (the “Option Exercise”). The Company received net proceeds of approximately \$155.4 million from the Offering and the Option Exercise, after deducting underwriting discounts and commissions and estimated offering expenses payable by the Company.

The Underwriting Agreement contains customary representations, warranties, covenants and conditions. In the Underwriting Agreement, the Company agreed to indemnify the Underwriters against certain liabilities that could be incurred by them in connection with the Offering.

The Offering was made pursuant to (i) an effective Registration Statement on Form S-3 (File No. 333-208806) filed with the Securities and Exchange Commission (the “SEC”) on December 30, 2015, including a related base prospectus dated January 19, 2016, (ii) an effective Registration Statement on Form S-3 (File No. 333-222366) filed with the SEC on December 29, 2017, including a related base prospectus dated January 10, 2018, and (iii) a related prospectus supplement dated July 11, 2018 and filed with the SEC pursuant to Rule 424(b)(5) under the Securities Act of 1933, as amended. The closing of the sale of the shares contemplated by the Underwriting Agreement occurred on July 16, 2018.

The foregoing summary of the Underwriting Agreement is qualified in its entirety by reference to the Underwriting Agreement attached hereto as Exhibit 1.1 hereto and is incorporated herein by reference.

The Company issued press releases on July 10, 2018, July 11, 2018 and July 16, 2018 announcing the commencement of the Offering, the pricing of the Offering and the closing of the Offering, respectively, which press releases are attached as Exhibits 99.1, 99.2 and 99.3, respectively, to this report.

### Item 9.01 Financial Statements and Exhibits.

(d) Exhibits:

<b>Exhibit No.</b>	<b>Description</b>
<a href="#"><u>1.1</u></a>	<a href="#"><u>Underwriting Agreement, dated July 11, 2018, among Assembly Biosciences, Inc., Jefferies LLC, Leerink Partners LLC and William Blair &amp; Company, L.L.C., as representatives of the several underwriters named on Schedule 1.</u></a>
<a href="#"><u>5.1</u></a>	<a href="#"><u>Opinion of Goodwin Procter LLP.</u></a>
<a href="#"><u>23.1</u></a>	<a href="#"><u>Consent of Goodwin Procter LLP (included in Exhibit 5.1).</u></a>
<a href="#"><u>99.1</u></a>	<a href="#"><u>Press release dated July 10, 2018.</u></a>
<a href="#"><u>99.2</u></a>	<a href="#"><u>Press release dated July 11, 2018.</u></a>
<a href="#"><u>99.3</u></a>	<a href="#"><u>Press release dated July 16, 2018.</u></a>

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EXHIBIT INDEX

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**SIGNATURES**

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

Date: July 16, 2018

Assembly Biosciences, Inc.

By: /s/ Derek A. Small  
Derek A. Small  
President and Chief Executive Officer

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## ASSEMBLY BIOSCIENCES, INC.

4,000,000 Shares of Common Stock, par value \$0.001 per share

## Underwriting Agreement

July 11, 2018

Jefferies LLC  
Leerink Partners LLC  
William Blair & Company, L.L.C.  
As Representatives of the  
several Underwriters listed  
in Schedule 1 hereto

c/o Jefferies LLC  
520 Madison Avenue  
New York, New York 10022

c/o Leerink Partners LLC  
One Federal Street, 37th Floor  
Boston, Massachusetts 02110

c/o William Blair & Company, L.L.C.  
150 North Riverside Plaza  
Chicago, Illinois 60606

Ladies and Gentlemen:

Assembly Biosciences, 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 4,000,000 shares of common stock, par value \$0.001 per share ("Common Stock"), of the Company (the "Underwritten Shares") and, at the option of the Underwriters, up to an additional 600,000 shares of Common Stock 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 of the Company to be outstanding after giving effect to the sale of the Shares are referred to herein as the "Stock".

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"), registration statements on Form S-3 (File Nos. 333-208806 and 333-222366), including a prospectus, relating to the Shares. Such registration statements, as amended at the time they each 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 statements 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 statements (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 upon request of purchasers 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 underwriting agreement (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.

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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 A, the "Pricing Disclosure Package"): a Preliminary Prospectus dated July 10, 2018 and each "free-writing prospectus" (as defined pursuant to Rule 405 under the Securities Act) listed on Annex A hereto.

"Applicable Time" means 5:30 P.M., New York City time, on July 11, 2018.

2. Purchase of the Shares.

(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 opposite such Underwriter's name in Schedule 1 hereto at a price per share (the "Purchase Price") of \$33.84.

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 nor 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 Pricing Disclosure Package. 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 Latham & Watkins LLP, counsel for the Underwriters, at 330 N. Wabash Avenue, Suite 2800, Chicago, Illinois at 9 A.M., Eastern time, on July 16, 2018, or at such other time or place on the same or such other date, not later than the fourth 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".

(d) 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.

(e) 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 is 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.

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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 required to be stated therein or 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 or 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 required to be stated therein or 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 or 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. No statement of material fact included in the Prospectus has been omitted from the Pricing Disclosure Package and no statement of material fact included in the Pricing Disclosure Package that is required to be included in the Prospectus has been omitted therefrom.

(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, made, used, authorized, approved or referred to and will not prepare, make, 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) 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 A hereto, each electronic road show and any other written communications approved in writing in advance by the Representatives. Each such Issuer Free Writing Prospectus complies 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 does not conflict with the information contained in the Registration Statement or the Pricing Disclosure Package, 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 or 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. Each such Issuer Free Writing Prospectus, as of its issue date and at all subsequent times through the completion of the public offer and sale of the Shares or until any earlier date that the Company notified or notifies the Representatives as described in Section 4(d), did not, does not and will not include any information that conflicted, conflicts or will conflict with the information contained in the Registration Statement or the Prospectus.

(d) *Registration Statement and Prospectus.* The Registration Statement has been declared effective by the Commission and has been filed with the Commission not earlier than three years prior to the date hereof; and no notice of objection of the Commission to the use of such registration statement or any post-effective amendment thereto pursuant to Rule 401(g)(2) under the Securities Act has been received by the Company. No order suspending the effectiveness of the Registration Statement has been issued by the Commission, and no proceeding for that purpose or pursuant to Section 8A of the Securities Act against the Company 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 complied and will comply in all material respects with the Securities Act 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, in the light of the circumstances under which they were made, not misleading; provided that the Company makes no representation or 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.

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(e) *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.

(f) *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 (“GAAP”) in the United States applied on a consistent basis throughout the periods covered thereby, 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.

(g) *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 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 involving a prospective material adverse change, in or affecting the business, properties, management, financial position, stockholders’ equity or results of operations 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 case as otherwise disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus.

(h) *Organization and Good Standing.* The Company has been duly organized and is validly existing and in good standing under the laws of its jurisdiction of organization, is duly qualified to do business and is in good standing in each jurisdiction in which its ownership or lease of property or the conduct of its business requires such qualification, and has all power and authority necessary to own or hold its properties and to conduct the businesses in which it is 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 condition (financial or otherwise), results of operations, business, properties 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 and Assembly Biosciences Cayman, which was formed on May 23, 2018. The subsidiaries listed in Schedule 2 to this Agreement are the only significant subsidiaries of the Company.

(i) *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” and “Description of Capital Stock”; 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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(j) *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) each Stock Option intended to qualify as an “incentive stock option” under Section 422 of the Internal Revenue Code of 1986, as amended (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 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 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 and, to the extent applicable, the Exchange Act and the rules of the Nasdaq Capital 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. Each Company Stock Plan is accurately described in all material respects in the Registration Statement, The Pricing Disclosure Package and the Prospectus.

(k) *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.

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

(m) *The Shares.* The Shares to be issued and sold by the Company hereunder have been duly authorized by the Company 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 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.

(n) *Listing.* The Shares have been approved for listing on the Nasdaq Capital Market.

(o) *No Violation or Default.* Neither the Company nor any of its subsidiaries is (i) in violation of its charter or bylaws 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 property or asset 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, 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.

(p) *No Conflicts.* The execution, delivery and performance by the Company of this Agreement, the issuance and sale of the Shares and the consummation by the Company of the transactions contemplated by this Agreement or the Pricing Disclosure Package and the Prospectus 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, result in the termination, modification or acceleration of, or result in the creation or imposition of any lien, charge or encumbrance upon any property, right or asset 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 property, right or asset of the Company or any of its subsidiaries is subject; (ii) result in any violation of the provisions of the charter or bylaws 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, except, in the case of clauses (i) and (iii) above, for any such conflict, breach, violation, default, lien, charge or encumbrance that would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

(q) *No Consents Required.* No consent, filing, approval, authorization, order, 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 may be required by the Financial Industry Regulatory Authority, Inc. (“FINRA”) and under applicable state securities laws in connection with the purchase and distribution of the Shares by the Underwriters.

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(r) *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, demands, claims, suits, arbitrations, inquiries or proceedings (“Actions”) 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 the subject that, individually or in the aggregate, if determined adversely to the Company or any of its subsidiaries, could reasonably be expected to have a Material Adverse Effect; no such Actions are threatened or, to the knowledge of the Company, contemplated by any governmental or regulatory authority or threatened by others; and (i) there are no current or pending Actions 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.

(s) *Independent Accountants.* Ernst & Young LLP, who has 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.

(t) *Title to Real and Personal Property.* The Company and its subsidiaries have good and marketable title in fee simple to, or have valid rights to lease or otherwise use, all items of real and personal property that are material to the respective businesses of the Company and its subsidiaries, 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) could not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect.

(u) *Intellectual Property.* (i) The Company and its subsidiaries own or have the right to use all patents, patent applications, trademarks, service marks, trade names, trademark registrations, service mark registrations, domain names and other source indicators, copyrights and copyrightable works, know-how, trade secrets, systems, procedures, proprietary or confidential information and all other worldwide intellectual property, industrial property and proprietary rights (collectively, “Intellectual Property”) used in the conduct of their respective businesses; (ii) the Company and its subsidiaries’ conduct of their respective businesses does not currently, and will not, upon the commercialization of any product candidates described or referred to in the Registration Statement, the Pricing Disclosure Package or the Prospectus, infringe, misappropriate or otherwise violate any Intellectual Property of any person; (iii) the Company and its subsidiaries have not received any written notice of any claim relating to Intellectual Property; and (iv) to the knowledge of the Company, the Intellectual Property of the Company and their subsidiaries is not being infringed, misappropriated or otherwise violated by any person. To the Company’s knowledge: (i) there are no third parties who have rights to any Intellectual Property, except for customary reversionary rights of third-party licensors with respect to Intellectual Property that is disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus (“Disclosure Documents”) as licensed to the Company or its subsidiaries; and (ii) there is no infringement by third parties of any Intellectual Property. There is no pending or to the Company’s knowledge, threatened action, suit, proceeding or claim by others: (A) challenging the Company’s rights in or to any Intellectual Property, and the Company is unaware of any facts which would form a reasonable basis for any such action, suit, proceeding or claim; (B) challenging the validity, enforceability or scope of any Intellectual Property, and the Company is unaware of any facts which would form a reasonable basis for any such action, suit, proceeding or claim; or (C) asserting that the Company or its subsidiaries infringe, misappropriate, or otherwise violate, or would, upon the commercialization of any product or service described in the Disclosure Documents as under development, infringe, misappropriate, or otherwise violate, any Intellectual Property rights of others, and the Company is unaware of any facts which would form a reasonable basis for any such action, suit, proceeding or claim. The Company and its subsidiaries have complied with the terms of each agreement pursuant to which Intellectual Property has been licensed to the Company or its subsidiaries, and all such agreements are in full force and effect. To the Company’s knowledge, there are no material defects in any of the patents or patent applications included in the Intellectual Property. The Company and its subsidiaries have taken all reasonable steps to protect, maintain and safeguard their Intellectual Property Rights, including the execution of appropriate nondisclosure, confidentiality agreements and invention assignment agreements and invention assignments with their employees, and to the Company’s knowledge, no employee of the Company is in or has been in violation of any term of any employment contract, patent disclosure agreement, invention assignment agreement, non-competition agreement, non-solicitation agreement, nondisclosure agreement, or any restrictive covenant to or with a former employer where the basis of such violation relates to such employee’s employment with the Company. To the Company’s knowledge, the duty of candor and good faith as required by the United States Patent and Trademark Office during the prosecution of the United States patents and patent applications included in the Company Intellectual Property have been complied with; and in all foreign offices having similar requirements, all such requirements have been complied with. The product candidates described in the Disclosure Documents as under development by the Company or its subsidiary fall within the scope of the claims of one or more patents or patent applications owned by, or exclusively licensed to, the Company or its subsidiary.

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(v) *Clinical Data and Regulatory Compliance.* The nonclinical tests, clinical trials and other studies (collectively, “studies”) that are described in, or the results of which are referred to in, the Registration Statement, the Pricing Disclosure Package or the Prospectus were and, if still pending, are being conducted in all material respects in accordance with the protocols, procedures and controls designed and approved for such studies and with standard medical and scientific research procedures; each description of the results of such studies is accurate and complete in all material respects and fairly presents the data derived from such studies, and the Company and its subsidiaries have no knowledge of any other studies the results of which are inconsistent with, or otherwise call into question, the results described or referred to in the Registration Statement, the Pricing Disclosure Package or the Prospectus; the Company and its subsidiaries have made all such filings and obtained all such approvals as may be required by the Food and Drug Administration of the U.S. Department of Health and Human Services or from any other U.S. or foreign government or drug regulatory agency, or health care facility Institutional Review Board (collectively, the “Regulatory Agencies”); the Company and its subsidiaries have not received any notice of, or correspondence from, any Regulatory Agency requiring the termination or suspension of any clinical trials that are described or referred to in the Registration Statement, the Pricing Disclosure Package or the Prospectus; and the Company and its subsidiaries have operated and currently are in compliance in all material respects with all applicable rules and regulations of the Regulatory Agencies.

(w) *Compliance with Health Care Laws.* The Company and its subsidiaries are, and at all times have been, in compliance in all material respects with all Health Care Laws. For purposes of this Agreement, “Health Care Laws” means: (i) the Federal Food, Drug, and Cosmetic Act and the regulations promulgated thereunder; (ii) all applicable federal, state, local and all applicable foreign health care related fraud and abuse laws, including, without limitation, the U.S. Anti-Kickback Statute (42 U.S.C. Section 1320a-7b(b)), the U.S. civil monetary penalties law (42 U.S.C. § 1320a-7a), the U.S. Civil False Claims Act (31 U.S.C. Section 3729 et seq.), the U.S. criminal false statements law (42 U.S.C. § 1320a-7b(a)), all applicable federal, state, local and all foreign criminal laws relating to health care fraud and abuse, including but not limited to 18 U.S.C. Sections 286 and 287, and the health care fraud criminal provisions under the U.S. Health Insurance Portability and Accountability Act of 1996 (“HIPAA”) (42 U.S.C. Section 1320d et seq.), the U.S. exclusion law (42 U.S.C. § 1320a-7), the statutes, regulations and directives of applicable government funded or sponsored healthcare programs, and the regulations promulgated pursuant to such statutes; (iii) the Standards for Privacy of Individually Identifiable Health Information, the Security Standards, and the Standards for Electronic Transactions and Code Sets promulgated under HIPAA, the Health Information Technology for Economic and Clinical Health Act (42 U.S.C. Section 17921 et seq.), and the regulations promulgated thereunder and any state or non-U.S. counterpart thereof or other law or regulation the purpose of which is to protect the privacy of individuals or prescribers; (iv) the U.S. Patient Protection and Affordable Care Act of 2010 (Public Law 111-148), as amended by the U.S. Health Care and Education Reconciliation Act of 2010 (Public Law 111-152), the regulations promulgated thereunder; (v) the U.S. Physician Payments Sunshine Act (42 U.S.C. § 1320a-7h), (vi) the U.S. Controlled Substances Act (21 U.S.C. Section 801 et seq.); and (vii) all other local, state, federal, national, supranational and foreign laws applicable to the Company and its subsidiaries. The Company and its subsidiaries have not received written notice of any claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action from any court or arbitrator or governmental or regulatory authority or third party alleging that any product operation or activity is in violation of any Health Care Laws nor is any such claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action threatened. The Company and its subsidiaries have filed, maintained or submitted all material reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments as required by any Health Care Laws, and all such reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments were complete and accurate on the date filed in all material respects (or were corrected or supplemented by a subsequent submission). The Company and its subsidiaries are not a party to any corporate integrity agreements, monitoring agreements, consent decrees, settlement orders, or similar agreements with or imposed by any governmental or regulatory authority. Additionally, neither the Company and its subsidiaries nor, to the best of its knowledge, any of their employees, officers or directors has been excluded, suspended or debarred from participation in any U.S. federal health care program or human clinical research or is subject to a governmental inquiry, investigation, proceeding, or other similar action that could reasonably be expected to result in debarment, suspension, or exclusion.

(x) *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, suppliers or other affiliates of the Company or any of its subsidiaries, on the other, that is required by the Securities Act to be described in each of the Registration Statement and the Prospectus and that is not so described in such documents and in the Pricing Disclosure Package.

(y) *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 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”).

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(z) *Taxes.* The Company and its subsidiaries have paid all federal, state, local and foreign taxes and filed all tax returns required to be paid or filed through the date hereof or have timely requested extension thereof; and except as otherwise disclosed in each of the Registration Statement, the Pricing Disclosure Package and the Prospectus, there is no tax deficiency that has been, or could reasonably be expected to be, asserted against the Company or any of its subsidiaries or any of their respective properties or assets.

(aa) *Licenses and Permits.* The Company and its subsidiaries possess all licenses, sub-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 each of 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 each of 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, sub-license, certificate, permit or authorization or has any reason to believe that any such license, sub-license, certificate, permit or authorization will not be renewed in the ordinary course.

(bb) *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.

(cc) *Certain Environmental Matters.* (i) The Company and its subsidiaries (x) are in compliance with all, and have not violated any, applicable federal, state, local and foreign laws (including common law), rules, regulations, requirements, decisions, judgments, decrees, orders and other legally enforceable requirements relating to pollution or the protection of human health or safety, the environment, natural resources, hazardous or toxic substances or wastes, pollutants or contaminants (collectively, "Environmental Laws"); (y) have received and are in compliance with all, and have not violated any, permits, licenses, certificates or other authorizations or approvals required of them under any Environmental Laws to conduct their respective businesses; and (z) have not received notice of any actual or potential liability or obligation under or relating to, or any actual or potential violation of, any Environmental Laws, including for the investigation or remediation of any disposal or release of hazardous or toxic substances or wastes, pollutants or contaminants, and have no knowledge of any event or condition that would reasonably be expected to result in any such notice, 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 each of the Pricing Disclosure Package and the Prospectus, (x) there is no proceeding that is pending, or that is known to be 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 proceeding regarding which it is reasonably believed no monetary sanctions of \$100,000 or more will be imposed, (y) 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 or concerning hazardous or toxic substances or wastes, pollutants or contaminants, that could reasonably be expected to have a material effect on the capital expenditures, earnings or competitive position of the Company and its subsidiaries, and (z) none of the Company or its subsidiaries anticipates material capital expenditures relating to any Environmental Laws.

(dd) *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 for whose acts or omissions the Company and its subsidiaries are or could 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 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 could 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.

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(ee) *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 entity, whether or not incorporated, that is under common control with the Company within the meaning of Section 4001(a)(14) of ERISA or any entity that would be regarded as a single employer with the Company under Section 414(b),(c),(m) or (o) of 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; (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; (iii) for each Plan that is subject to the funding rules of Section 412 of the Code or Section 302 of ERISA, no Plan has failed (whether or not waived), or is reasonably expected to fail, to satisfy the minimum funding standards (within the meaning of Section 302 of ERISA or Section 412 of the Code) applicable to such Plan; (iv) no Plan is, or is reasonably expected to be, in “at risk status” (within the meaning of Section 303(i) of ERISA) and no Plan that is a “multiemployer plan” within the meaning of Section 4001(a)(3) of ERISA is in “endangered status” or “critical status” (within the meaning of Sections 304 and 305 of ERISA) (v) the fair market value of the assets of each Plan exceeds the present value of all benefits accrued under such Plan (determined based on those assumptions used to fund such Plan); (vi) no “reportable event” (within the meaning of Section 4043(c) of ERISA and the regulations promulgated thereunder) has occurred or is reasonably expected to occur; (vii) each Plan that is intended to be qualified under Section 401(a) of the Code is so qualified, and nothing has occurred, whether by action or by failure to act, which would cause the loss of such qualification; (viii) 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 Pension Benefit Guarantee Corporation, 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 (ix) none of the following events has occurred or is reasonably likely to occur: (A) a material increase in the aggregate amount of contributions required to be made to all Plans by the Company or its Controlled Group affiliates in the current fiscal year of the Company and its Controlled Group affiliates compared to the amount of such contributions made in the Company’s and its Controlled Group affiliates’ most recently completed fiscal year; or (B) a material increase in the Company and its subsidiaries’ “accumulated post-retirement benefit obligations” (within the meaning of Accounting Standards Codification Topic 715-60) compared to the amount of such obligations in the Company and its subsidiaries’ most recently completed fiscal year, except in each case with respect to the events or conditions set forth in (i) through (ix) hereof, as would not, individually or in the aggregate, have a Material Adverse Effect.

(ff) *Disclosure Controls.* The Company maintains an effective system of “disclosure controls and procedures” (as defined in Rule 13a-15(e) of 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 has carried out evaluations of the effectiveness of its disclosure controls and procedures as required by Rule 13a-15 of the Exchange Act.

(gg) *Accounting Controls.* The Company maintains a system 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, its 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 GAAP. The Company maintains 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 GAAP 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, the Prospectus and the Pricing Disclosure Package fairly presents the information called for in all material respects and is prepared in accordance with the Commission’s rules and guidelines applicable thereto. Based on the Company’s most recent evaluation of its internal controls over financial reporting pursuant to Rule 13a-15(c) of the Exchange Act, 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.

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(hh) *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.

(ii) *Insurance*. The Company has insurance covering its respective properties, operations, personnel and businesses, including business interruption insurance, which insurance is in amounts and insures against such losses and risks as are adequate to protect the Company and its respective businesses; and the Company has not (i) received notice from any insurer or agent of such insurer that 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.

(jj) *No Unlawful Payments*. Neither the Company nor any of its subsidiaries nor any director, officer or employee of the Company or any of its subsidiaries nor, to the knowledge of the Company, any agent, affiliate 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 or taken an act in furtherance of an offer, promise or authorization of any direct or indirect unlawful payment or benefit to any foreign or domestic government official or employee, including of any government-owned or controlled entity or of a public international organization, or any person acting in an official capacity for or on behalf of any of the foregoing, or any political party or party official or candidate for political office; (iii) violated or is in violation of any provision of the U.S. Foreign Corrupt Practices Act of 1977, as amended, or any applicable law or regulation implementing the OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions, or committed an offence under the Bribery Act 2010 of the United Kingdom or any other applicable anti-bribery or anti-corruption law; or (iv) made, offered, agreed, requested or taken an act in furtherance of any unlawful bribe or other unlawful benefit, including, without limitation, any rebate, payoff, influence payment, kickback or other unlawful or improper payment or benefit. The Company has instituted, maintains and enforces, and will continue to maintain and enforce policies and procedures designed to promote and ensure compliance with all applicable anti-bribery and anti-corruption laws.

(kk) *Compliance with Anti-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, including those of the Currency and Foreign Transactions Reporting Act of 1970, as amended, the applicable money laundering statutes of all jurisdictions where the Company or any of its subsidiaries conducts business, the rules and regulations thereunder and any related or similar rules, regulations or guidelines issued, administered or enforced by any governmental or regulatory agency (collectively, the "Anti-Money Laundering Laws") and no action, suit or proceeding by or before any court or governmental or regulatory agency, authority or body or any arbitrator involving the Company or any of its subsidiaries with respect to the Anti-Money Laundering Laws is pending or, to the knowledge of the Company, threatened.

(ll) *No Conflicts with Sanctions Laws*. Neither the Company nor any of its subsidiaries, directors, officers, nor, to the knowledge of the Company, any employee, agent or affiliate of the Company or any of its subsidiaries is currently the subject or the target of any sanctions or designated on any prohibited party lists administered or enforced by the U.S. government, (including, without limitation, the Office of Foreign Assets Control of the U.S. Department of the Treasury ("OFAC") or the U.S. Department of State and including, without limitation, designation on OFAC's Specially Designated Nationals and Blocked Persons List or OFAC's Foreign Sanctions Evaders List), the United Nations Security Council ("UNSC"), the European Union, Her Majesty's Treasury ("HMT") or other relevant sanctions authorities (collectively, "Sanctions"), nor is the Company or any of its subsidiaries located, organized or resident in a country or territory that is the subject or target of Sanctions, including, without limitation, Cuba, Iran, North Korea, Syria and Crimea, but not including Sudan as of January 17, 2017 (each, a "Sanctioned Country"); 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 (i) to fund or facilitate any activities of or business with any person that, at the time of such funding or facilitation, is the subject or target of Sanctions, (ii) to fund or facilitate any activities of or business in any Sanctioned Country or (iii) in any other manner that will result in a violation by any person (including any person participating in the transaction, whether as underwriter, advisor, investor or otherwise) of Sanctions. For the past five years, the Company and its subsidiaries have not knowingly engaged in and are not now knowingly engaged in any dealings or transactions with any person that at the time of the dealing or transaction is or was the subject or the target of Sanctions or with any Sanctioned Country.

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(mm) *No Restrictions on Subsidiaries.* 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 or similar ownership interest, 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.

(nn) *No Broker's Fees.* Neither the Company nor any of 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 any of them or any Underwriter for a brokerage commission, finder's fee or like payment in connection with the offering and sale of the Shares.

(oo) *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.

(pp) *No Stabilization.* The Company has not taken, directly or indirectly, any action designed to or that could reasonably be expected to cause or result in any stabilization or manipulation of the price of the Shares.

(qq) *Margin Rules.* Neither the issuance, sale and delivery of the Shares nor the application of the proceeds thereof by the Company as described in each of the Registration Statement, the Pricing Disclosure Package and the Prospectus will 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.

(rr) *Forward-Looking Statements.* No forward-looking statement (within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act) included or incorporated by reference in any of 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.

(ss) *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 or incorporated by reference in each of 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.

(tt) *Sarbanes-Oxley Act.* There is and has been no failure on the part of the Company or any of the Company's directors or officers, in their capacities as such, to comply with any provision of the Sarbanes-Oxley Act of 2002, as amended 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.

(uu) *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. The Company has paid the registration fee for this offering pursuant to Rule 456(b)(1) under the Securities Act or will pay such fee within the time period required by such rule (without giving effect to the proviso therein) and in any event prior to the Closing Date.

(vv) *No Ratings.* There are (and prior to the Closing Date, will be) no debt securities or preferred stock issued 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 under Section 3(a)(62) under the Exchange Act.

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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 to the extent required by Rule 433 under the Securities Act; and the Company 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 the Company 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 prior to 10:00 A.M., New York City time, on the business day next 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, three signed copies of the Registration Statement as originally filed and each amendment thereto, in each case including all exhibits and consents filed therewith and documents incorporated by reference therein; and (ii) to each Underwriter (A) 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 making, 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 make, 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 amendment to the Prospectus has been filed or distributed; (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; (iv) of the issuance by the Commission or any other governmental or regulatory authority 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 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 or development within the Prospectus Delivery Period as a result of which the Prospectus, any of the Pricing Disclosure Package or any Issuer Free Writing Prospectus as then amended or supplemented would include 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, in the light of the circumstances existing when the Prospectus, the Pricing Disclosure Package, any such Issuer Free Writing Prospectus 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 reasonable 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 suspending any such qualification of the Shares and, if any such order is issued, will obtain as soon as possible the withdrawal thereof.

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(e) *Ongoing Compliance.* (1) If during the Prospectus Delivery Period (i) any event or development 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 required to be stated therein or 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 (or any document to be filed with the Commission and incorporated by reference therein) as may be necessary so that the statements in the Prospectus as so amended or supplemented (or any document to be filed with the Commission and incorporated by reference therein) 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 or development 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 (or any document to be filed with the Commission and incorporated by reference therein) 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 (or obtain exemptions from the application of) the securities or Blue Sky laws of such jurisdictions as the Representatives shall reasonably request and will continue such qualifications or exemptions 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) *Earnings Statement.* The Company will make generally available to its securityholders and the Representatives as soon as practicable an earnings 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 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 Jefferies LLC, Leerink Partners LLC and William Blair & Company, L.L.C., other than (1) the Shares to be sold hereunder; (2) the issuance of any options to purchase shares of Stock, restricted stock awards or other equity-based awards that are subject to settlement in shares of Stock or the issuance of shares of Stock of the Company upon the exercise of options or purchase pursuant to the Company’s employee stock purchase plan, in each case granted under Company Stock Plans as existing on the date hereof, or as amended; (3) any shares of Stock of the Company issued upon the conversion of securities or the exercise of warrants, which securities or warrants are outstanding on the date hereof and described in the Pricing Disclosure Package; (4) the filing of a registration statement on Form S-8 or any successor form thereto and (5) the sale or issuance of or entry into an agreement to sell or issue shares of Stock in connection with the Company’s acquisition of one or more businesses, products, assets or technologies (whether by means of merger, stock purchase, asset purchase or otherwise) or in connection with joint ventures, collaboration or licensing agreements, marketing or distribution arrangements, commercial relationships or other strategic transactions; provided, that, the aggregate number of shares of Stock that the Company may sell or issue or agree to sell or issue pursuant to this clause (5) shall not exceed 5% of the total number of shares of Stock issued and outstanding immediately following the completion of the transactions contemplated by this Agreement.

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(i) *Use of Proceeds.* The Company will apply the net proceeds from the sale of the Shares as described in each of 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, any action designed to or that could reasonably be expected to cause or result in any stabilization or manipulation of the price of the Stock.

(k) *Reports.* So long as the Shares are outstanding, 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.

(l) *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.

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

(a) It has not 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 A 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.

(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 B 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.

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(c) *No Material Adverse Change.* No event or condition of a type described in Section 3(g) 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.

(d) *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 of two of the chief financial officer, the chief accounting officer and the chief executive officer of the Company (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(d) 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 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) and (c) above.

(e) *Comfort Letters.* On the date of this Agreement and on the Closing Date or the Additional Closing Date, as the case may be, Ernst & Young 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 in or incorporated by reference in each of 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.

(f) *Opinion and 10b-5 Statement of Counsel for the Company.* Goodwin Procter 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.

(g) *Opinion of Intellectual Property Counsel for the Company.* Goodwin Procter LLP, intellectual property counsel for the Company, 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.

(h) *Opinion and Negative Assurance Letter 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 negative assurance letter, addressed to the Underwriters, of Latham & Watkins 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.

(i) *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 by the Company; 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 by the Company.

(j) *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 in its jurisdiction of organization and good standing 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.

(k) *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 Capital Market, subject to official notice of issuance.

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(l) *Lock-up Agreements.* The “lock-up” agreements, each substantially in the form of Exhibit A hereto, between you and 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 full force and effect on the Closing Date or Additional Closing Date, as the case may be.

(m) *CFO Certificates.* On the date hereof and on the Closing Date, Graham Cooper, Chief Financial Officer and Chief Operating Officer of the Company, shall have furnished or caused to be furnished to the Representatives a certificate satisfactory to the Representatives, dated the applicable date of delivery.

(n) *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.* The Company agrees to indemnify and hold harmless each Underwriter, its affiliates, directors, officers, employees and agents, and each person, if any, who controls any Underwriter within the meaning of the Securities Act or the Exchange Act against any loss, claim, damage, liability or expense, as incurred, to which such Underwriter or such affiliate, director, officer, employee, agent or controlling person may become subject, under the Securities Act, the Exchange Act, other federal or state statutory law or regulation, or the laws or regulations of foreign jurisdictions where Shares have been offered or sold or at common law or otherwise (including in settlement of any litigation, if such settlement is effected with the written consent of the Company), insofar as such loss, claim, damage, liability or expense (or actions in respect thereof as contemplated below) arises out of or is based upon (i) any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, or any amendment thereto, or the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading; or (ii) any untrue statement or alleged untrue statement of a material fact included in any Preliminary Prospectus, the Pricing Disclosure Package, Prospectus, any Issuer Free Writing Prospectus that the Company has used, referred to or filed, or is required to file, pursuant to Rule 433(d) of the Securities Act, any road show as defined in Rule 433(h) under the Securities Act (a “road show”) or the Prospectus (or any amendment or supplement to the foregoing), or the omission or alleged omission to state therein a material fact necessary in order to make the statements, in the light of the circumstances under which they were made, not misleading; or (iii) any act or failure to act or any alleged act or failure to act by any Underwriter in connection with, or relating in any manner to, the Shares or the offering contemplated hereby, and which is included as part of or referred to in any loss, claim, damage, liability or action arising out of or based upon any matter covered by clause (i) or (ii) above; and to reimburse each Underwriter and each such affiliate, director, officer, employee, agent and controlling person for any and all reasonable and documented expenses (including the fees and disbursements of counsel) as such expenses are incurred by such Underwriter or such affiliate, director, officer, employee, agent or controlling person in connection with investigating, defending, settling, compromising or paying any such loss, claim, damage, liability, expense or action; provided, however, that the foregoing indemnity agreement shall not apply to any loss, claim, damage, liability or expense to the extent, but only to the extent, arising out of or based upon any untrue statement or alleged untrue statement or omission or alleged omission made in reliance upon and in conformity with information relating to any Underwriter furnished to the Company by the Representatives in writing expressly for use in the Registration Statement, any Preliminary Prospectus, the Pricing Disclosure Package, any such Issuer Free Writing Prospectus, any road show or the Prospectus (or any amendment or supplement thereto), 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. The indemnity agreement set forth in this Section 7(a) shall be in addition to any liabilities that the Company may otherwise have.

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(b) *Indemnification of the Company.* Each Underwriter agrees, severally and not jointly, to indemnify and hold harmless the Company, each of its directors, each of its officers who signed the Registration Statement and each person, if any, who controls the Company within the meaning of the Securities Act or the Exchange Act, against any loss, claim, damage, liability or expense, as incurred, to which the Company, or any such director, officer or controlling person may become subject, under the Securities Act, the Exchange Act, or other federal or state statutory law or regulation, or at common law or otherwise (including in settlement of any litigation, if such settlement is effected with the written consent of such Underwriter), insofar as such loss, claim, damage, liability or expense (or actions in respect thereof as contemplated below) arises out of or is based upon (i) any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, or any amendment thereto, or any omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading or (ii) any untrue statement or alleged untrue statement of a material fact included in any Preliminary Prospectus, the Pricing Disclosure Package, any Issuer Free Writing Prospectus that the Company has used, referred to or filed, or is required to file, pursuant to Rule 433 of the Securities Act or the Prospectus (or any such amendment or supplement) or the omission or alleged omission to state therein a material fact necessary in order to make the statements, in the light of the circumstances under which they were made, not misleading, in each case to the extent, but only to the extent, that such untrue statement or alleged untrue statement or omission or alleged omission was made in the Registration Statement, such Preliminary Prospectus, the Pricing Disclosure Package, such Issuer Free Writing Prospectus or the Prospectus (or any such amendment or supplement), in reliance upon and in conformity with information relating to such Underwriter furnished to the Company by the Representatives in writing expressly for use therein; and to reimburse the Company, or any such director, officer or controlling person for any and all reasonable and documented expenses (including the fees and disbursements of counsel) as such expenses are incurred by the Company, or any such director, officer or controlling person in connection with investigating, defending, settling, compromising or paying any such loss, claim, damage, liability, expense or action. The Company hereby acknowledges that the only information that the Representatives have furnished to the Company expressly for use in the Registration Statement, any Preliminary Prospectus, the Pricing Disclosure Package, any Issuer Free Writing Prospectus that the Company has filed, or is required to file, pursuant to Rule 433(d) of the Securities Act or the Prospectus (or any amendment or supplement to the foregoing) are the statements set forth in the fifth, fourteenth through seventeenth and nineteenth paragraphs under the caption “Underwriting” in the Preliminary Prospectus and the Prospectus. The indemnity agreement set forth in this Section 7(b) shall be in addition to any liabilities that each Underwriter may otherwise have.

(c) *Notice and Procedures.* Promptly after receipt by an indemnified party under this Section 7 of notice of the commencement of any action, such indemnified party will, if a claim in respect thereof is to be made against an indemnifying party under this Section 7, notify the indemnifying party in writing of the commencement thereof, but the omission so to notify the indemnifying party will not relieve the indemnifying party from any liability which it may have to any indemnified party to the extent the indemnifying party is not materially prejudiced as a proximate result of such failure and shall not in any event relieve the indemnifying party from any liability that it may have pursuant to this agreement. In case any such action is brought against any indemnified party and such indemnified party seeks or intends to seek indemnity from an indemnifying party, the indemnifying party will be entitled to participate in, and, to the extent that it shall elect, jointly with all other indemnifying parties similarly notified, by written notice delivered to the indemnified party promptly after receiving the aforesaid notice from such indemnified party, to assume the defense thereof with counsel reasonably satisfactory to such indemnified party; provided, however, that if the defendants in any such action include both the indemnified party and the indemnifying party and the indemnified party shall have reasonably concluded that a conflict may arise between the positions of the indemnifying party and the indemnified party in conducting the defense of any such action or that there may be legal defenses available to it and/or other indemnified parties which are different from or additional to those available to the indemnifying party, the indemnified party or parties shall have the right to select separate counsel to assume such legal defenses and to otherwise participate in the defense of such action on behalf of such indemnified party or parties. Upon receipt of notice from the indemnifying party to such indemnified party of such indemnifying party’s election so to assume the defense of such action and approval by the indemnified party of counsel, the indemnifying party will not be liable to such indemnified party under this Section 7 for any legal or other expenses subsequently incurred by such indemnified party in connection with the defense thereof unless (i) the indemnified party shall have employed separate counsel in accordance with the proviso to the preceding sentence (it being understood, however, that the indemnifying party shall not be liable for the fees and expenses of more than one separate counsel (together with local counsel), representing the indemnified parties who are parties to such action), which counsel (together with any local counsel) for the indemnified parties shall be selected by Jefferies LLC, Leerink Partners LLC and William Blair & Company, L.L.C. (in the case of counsel for the indemnified parties referred to in Section 7(a) above) or by the Company (in the case of counsel for the indemnified parties referred to in Section 7(b) above) or (ii) the indemnifying party shall not have employed counsel satisfactory to the indemnified party to represent the indemnified party within a reasonable time after notice of commencement of the action or (iii) the indemnifying party has authorized in writing the employment of counsel for the indemnified party at the expense of the indemnifying party, in each of which cases the fees and expenses of counsel shall be at the expense of the indemnifying party and shall be paid as they are incurred.

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(d) *Settlements.* The indemnifying party under this Section 7 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 party agrees to indemnify the indemnified party against any loss, claim, damage, liability or expense by reason of such settlement or judgment. Notwithstanding the foregoing sentence, if at any time an indemnified party shall have requested an indemnifying party to reimburse the indemnified party for fees and expenses of counsel as contemplated by Section 7(c) hereof, the indemnifying party shall be liable for any settlement of any proceeding effected without its written consent if (i) such settlement is entered into more than 30 days after receipt by such indemnifying party of the aforesaid request and (ii) such indemnifying party shall not have reimbursed the indemnified party in accordance with such request prior to the date of such settlement. No indemnifying party shall, without the prior written consent of the indemnified party, effect any settlement, compromise or consent to the entry of judgment in any pending or threatened action, suit or proceeding in respect of which any indemnified party is or could have been a party and indemnity was or could have been sought hereunder by such indemnified party, unless such settlement, compromise or consent includes an unconditional release of such indemnified party from all liability on claims that are the subject matter of such action, suit or proceeding and does not include an admission of fault or culpability or a failure to act by or on behalf of such indemnified party.

(e) *Contribution.* If the indemnification provided for in this Section 7 is for any reason held to be unavailable to or otherwise insufficient to hold harmless an indemnified party in respect of any losses, claims, damages, liabilities or expenses referred to therein, then each indemnifying party shall contribute to the aggregate amount paid or payable by such indemnified party, as incurred, as a result of any losses, claims, damages, liabilities or expenses referred to therein (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 hand, from the offering of the Offered Shares pursuant to this Agreement or (ii) if the allocation provided by clause (i) above is not permitted by applicable law, in such proportion as is appropriate to reflect not only the relative benefits referred to in clause (i) above but also the relative fault of the Company, on the one hand, and the Underwriters, on the other hand, in connection with the statements or omissions which resulted in such losses, claims, damages, liabilities or expenses, 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 hand, in connection with the offering of the Shares pursuant to this Agreement shall be deemed to be in the same respective proportions as the total proceeds from the offering of the Shares pursuant to this Agreement (before deducting expenses) received by the Company, and the total underwriting discounts and commissions received by the Underwriters, in each case as set forth on the front cover page of the Prospectus, bear to the aggregate initial public offering price of the Shares as set forth on such cover. The relative fault of the Company, on the one hand, and the Underwriters, on the other hand, shall be determined by reference to, among other things, whether any such untrue or alleged untrue statement of a material fact or omission or alleged omission to state a material fact relates to information supplied by the Company, on the one hand, or the Underwriters, on the other hand, and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission.

The amount paid or payable by a party as a result of the losses, claims, damages, liabilities and expenses referred to above shall be deemed to include, subject to the limitations set forth in Section 7(c), any legal or other fees or expenses reasonably incurred by such party in connection with investigating or defending any action or claim. The provisions set forth in Section 7(c) with respect to notice of commencement of any action shall apply if a claim for contribution is to be made under this Section 7(e); provided, however, that no additional notice shall be required with respect to any action for which notice has been given under Section 7(c) for purposes of indemnification.

The Company and the Underwriters agree that it would not be just and equitable if contribution pursuant to this Section 7(e) 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 which does not take account of the equitable considerations referred to in this Section 7(e).

Notwithstanding the provisions of this Section 7(e), no Underwriter shall be required to contribute any amount in excess of the underwriting discounts and commissions received by such Underwriter in connection with the Shares underwritten by it and distributed to the public. 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(e) are several, and not joint, in proportion to their respective underwriting commitments as set forth opposite their respective names on Schedule 1. For purposes of this Section 7(e), each affiliate, director, officer, employee and agent of an Underwriter and each person, if any, who controls an Underwriter within the meaning of the Securities Act or the Exchange Act shall have the same rights to contribution as such Underwriter, and each director of the Company, each officer of the Company who signed the Registration Statement, and each person, if any, who controls the Company within the meaning of the Securities Act and the Exchange Act shall have the same rights to contribution as the Company.

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8. Effectiveness of Agreement. This Agreement shall become effective as of the date first written above.

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 on or 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 or the Nasdaq Market; (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 Company will continue to be liable for the payment of expenses as set forth in Section 11 hereof and 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.

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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 fees and expenses of the Company's counsel and independent accountants; (iv) the fees and expenses incurred in connection with the registration or qualification and determination of eligibility for investment 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); (v) the cost of preparing stock certificates; (vi) the costs and charges of any transfer agent and any registrar; (vii) all expenses and application fees incurred in connection with any filing with, and clearance of the offering by, FINRA (including the related fees and expenses of counsel for the Underwriters); provided, that the amount of such fees and disbursements of counsel for the Underwriters to be paid by the Company shall not exceed \$2,500 in the aggregate; (viii) all expenses incurred by the Company in connection with any "road show" presentation to potential investors, except that the cost of any aircraft or other transportation chartered in connection therewith shall be split 50:50 with the Underwriters; and (ix) all expenses and application fees related to the listing of the Shares on the Nasdaq Capital Market.

(b) If (i) this Agreement is terminated pursuant to 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, 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 herein, and the affiliates of each Underwriter 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; (c) the term "subsidiary" has the meaning set forth in Rule 405 under the Securities Act; and (d) the term "significant subsidiary" has the meaning set forth in Rule 1-02 of Regulation S-X under the Exchange Act. In the event that the Company has only one subsidiary, then all references herein to "subsidiaries" of the Company shall be deemed to refer to such single subsidiary, mutatis mutandis.

15. Compliance with USA Patriot Act. In accordance with the requirements of the USA Patriot Act (Title III of Pub. L. 107-56 (signed into law October 26, 2001)), the Underwriters are required to obtain, verify and record information that identifies their respective clients, including the Company, which information may include the name and address of their respective clients, as well as other information that will allow the Underwriters to properly identify their respective clients.

16. Miscellaneous.

(a) *Authority of Jefferies LLC, Leerink Partners LLC and William Blair & Company, L.L.C.* Any action by the Underwriters hereunder may be taken by Jefferies LLC, Leerink Partners LLC and William Blair & Company, L.L.C. on behalf of the Underwriters, and any such action taken by Jefferies LLC, Leerink Partners LLC and William Blair & Company, L.L.C. shall be binding upon the Underwriters.

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(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 Jefferies LLC, 520 Madison Avenue, New York, New York 10022 (fax: (646) 619-4437); Attention: General Counsel; c/o Leerink Partners LLC, One Federal Street, 37<sup>th</sup> Floor, Boston, Massachusetts 02110; Attention: John I. Fitzgerald, Esq. (fax: (617) 918-4664); and c/o William Blair & Company, L.L.C., 150 North Riverside Plaza, Chicago, Illinois 60606, Attention: General Counsel (fax: (312) 551-4646). Notices to the Company shall be given to it at Assembly Biosciences, Inc., 11711 N. Meridian Street, Suite 310, Carmel, Indiana 46032, (fax: (317) 663-2462); Attention: Elizabeth H. Lacy, Esq. with a copy to (which copy shall not constitute notice) to Goodwin Procter LLP, 100 Northern Avenue, Boston, Massachusetts 02210 (fax: (617) 321-4377), Attention: Mitchell S. Bloom, Esq.

(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.

(d) *Waiver of Jury Trial.* The Company hereby irrevocably waives, to the fullest extent permitted by applicable law, any and all right to trial by jury in any legal proceeding arising out of or relating to this Agreement or the transactions contemplated hereby.

(f) *Waiver of Jury Trial.* Each of the parties hereto hereby waives any right to trial by jury in any suit or proceeding arising out of or relating to this Agreement.

(g) *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.

(h) *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.

(i) *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.

(j) *Integration.* This Agreement supersedes all prior agreements and understandings (whether written or oral) between the Company and the Underwriters, or any of them, with respect to the subject matter hereof.

[signature page follows]

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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,  
ASSEMBLY BIOSCIENCES, INC.

By: /s/ Derek A. Small  
Name: Derek A. Small  
Title: President and Chief Executive Officer

Accepted: As of the date first written above

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

JEFFERIES LLC

By: /s/ Kevin J. Sheridan  
Authorized Signatory

LEERINK PARTNERS LLC

By: /s/ Jon Civitarese  
Authorized Signatory

WILLIAM BLAIR & COMPANY, L.L.C.

By: /s/ Steve Maletzky  
Authorized Signatory

*[Signature page to Underwriting Agreement]*

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Underwriter	Number of Shares
Jefferies LLC	1,300,000
Leerink Partners LLC	1,100,000
William Blair & Company, L.L.C.	800,000
Mizuho Securities USA LLC	500,000
Robert W. Baird & Co. Incorporated	300,000
	<b>Total</b>
	<u><u>4,000,000</u></u>

Significant Subsidiaries

None.

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a. **Issuer Free Writing Prospectuses**

None.

b. **Pricing Information Provided Orally by Underwriters**

Price: \$36.00

Number of Shares: 4,000,000 (plus 600,000 Option Shares)

Underwriting discounts and commissions: \$2.16 per share

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**Assembly Biosciences, Inc.  
Pricing Term Sheet**

None.

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## FORM OF LOCK-UP AGREEMENT

\_\_\_\_\_, 2018

JEFFERIES LLC  
LEERINK PARTNERS LLC  
WILLIAM BLAIR & COMPANY, L.L.C.

As Representatives of  
the several Underwriters listed in  
Schedule 1 to the Underwriting  
Agreement referred to below

c/o Jefferies LLC  
520 Madison Avenue  
New York, New York 10022

c/o Leerink Partners LLC  
One Federal Street, 37th Floor  
Boston, Massachusetts 02110

c/o William Blair & Company, L.L.C.  
150 North Riverside Plaza  
Chicago, Illinois 60606

Re: Assembly Biosciences, Inc. --- Public Offering

Ladies and Gentlemen:

The undersigned understands that you, as Representatives of the several Underwriters, propose to enter into an Underwriting Agreement (the "Underwriting Agreement") with Assembly Biosciences, Inc., a Delaware corporation (the "Company"), providing for the public offering (the "Public Offering") by the several Underwriters named in Schedule 1 to the Underwriting Agreement (the "Underwriters"), of common stock, par value \$0.001 per share (the "Common Stock"), of the Company (the "Securities"). Capitalized terms used herein and not otherwise defined shall have the meanings set forth in the Underwriting Agreement.

In consideration of the Underwriters' agreement to purchase and make the Public Offering of the Securities, and for other good and valuable consideration receipt of which is hereby acknowledged, the undersigned hereby agrees that, without the prior written consent of Jefferies LLC, Leerink Partners LLC and William Blair & Company, L.L.C. on behalf of the Underwriters, the undersigned will not, during the period beginning on the date of this letter agreement (this "Letter Agreement") and ending 90 days after the date of the prospectus relating to the Public Offering (the "Prospectus") (such period, the "Restricted Period"), (1) lend, 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:

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- (A) transfers of shares of Common Stock as a bona fide gift or gifts or for bona fide estate planning purposes;
- (B) distributions of shares of Common Stock to members or stockholders of the undersigned;
- (C) by will or intestate succession upon the death of the undersigned;
- (D) transactions in or solely with respect to Common Stock or other securities convertible into or exercisable or exchangeable for Common Stock in each case acquired in open market transactions after completion of the Public Offering;
- (E) transfers made by the undersigned to the Company as part of a net exercise or to satisfy tax withholding obligations pursuant to the Company's equity incentive plans or arrangements disclosed in the Prospectus (as defined in the Underwriting Agreement);
- (F) in connection with the entry by the undersigned at any time on or after the date of the Underwriting Agreement, of any trading plan providing for the sale of Common Stock by the undersigned, which trading plan meets the requirements of Rule 10b5-1(c) under the Securities Exchange Act of 1934, as amended, provided, however, that such plan does not provide for, or permit, the sale of any Common Stock during the Restricted Period and no public announcement or filing is voluntarily made or required regarding such plan during the Restricted Period; and
- (G) in connection with any transfers made by the undersigned by operation of law, such as pursuant to a qualified domestic order or in connection with a divorce settlement,

provided that in the case of any transfer or distribution pursuant to clause (A), (B), (C) or (G), each donee or distributee shall execute and deliver to the Representatives a lock-up letter in the form of this Letter Agreement; and provided, further, that in the case of any transfer or distribution pursuant to clause (A), (B) or (D), no filing by any party (donor, donee, transferor or transferee) reporting a reduction in beneficial ownership under the Exchange Act or other public announcement shall be required or shall be made voluntarily in connection with such transfer or distribution (other than a filing on a Form 5 made after the expiration of the Restricted Period referred to above); and provided, further, that in the case of any transfer pursuant to clause (E), any filing by the undersigned required by the Exchange Act must include an annotation to the effect that such transfer was made to satisfy tax withholding obligations in connection with the exercise or vesting of securities pursuant to the Company's equity incentive plans.

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 the Underwriting Agreement does not become effective by September 30, 2018, or if the Underwriting Agreement (other than the provisions thereof which survive termination) shall terminate or be terminated prior to payment for and delivery of the Common Stock to be sold thereunder, the undersigned shall be released from, all obligations under this Letter Agreement. The undersigned understands that the Underwriters are entering into the Underwriting Agreement and proceeding with the Public Offering 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.

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Very truly yours,

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

*[Signature Page to Lock-up Agreement]*

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July 16, 2018

Assembly Biosciences, Inc.  
11711 N. Meridian St., Suite 310  
Carmel, IN 46032

Re: Securities Registered under Registration Statements on Form S-3

Ladies and Gentlemen:

We have acted as counsel to you in connection with your filing of Registration Statements on Form S-3 (File Nos. 333-208806 and 333-222366) (as amended or supplemented, the "Registration Statements") filed on December 30, 2015 and December 29, 2017, respectively, with the Securities and Exchange Commission (the "Commission") pursuant to the Securities Act of 1933, as amended (the "Securities Act"), relating to the registration of the offering by Assembly Biosciences, Inc., a Delaware corporation (the "Company") of up to \$150,000,000 and \$250,000,000, respectively, of any combination of securities of the types specified therein. The Registration Statements were declared effective by the Commission on January 19, 2016 and January 10, 2018, respectively. Reference is made to our opinion letters dated December 30, 2015 and December 29, 2017, respectively, and included as Exhibit 5.1 to the Registration Statements. We are delivering this supplemental opinion letter in connection with the prospectus supplement (the "Prospectus Supplement") filed on July 13, 2018 by the Company with the Commission pursuant to Rule 424 under the Securities Act. The Prospectus Supplement relates to the offering by the Company of up to 4,600,000 shares of the Company's Common Stock, par value \$0.001 per share (the "Shares") covered by the Registration Statements. The Shares include shares subject to an option granted by the Company to the underwriters of the offering to purchase 600,000 additional Shares. The Shares are being sold to the several underwriters named in, and pursuant to, an underwriting agreement among the Company and such underwriters (the "Underwriting Agreement").

We have reviewed such documents and made such examination of law as we have deemed appropriate to give the opinion set forth below. We have relied, without independent verification, on certificates of public officials and, as to matters of fact material to the opinion set forth below, on certificates of officers of the Company.

The opinion set forth below is limited to the Delaware General Corporation Law.

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Based on the foregoing, we are of the opinion that the Shares have been duly authorized and, upon issuance and delivery against payment therefor in accordance with the terms of the Underwriting Agreement, the Shares will be validly issued, fully paid and non-assessable.

We hereby consent to the inclusion of this opinion as Exhibit 5.1 to the Registration Statements and to the references to our firm under the caption "Legal Matters" in the Registration Statements. In giving our consent, we do not 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 thereunder.

Very truly yours,

/s/ Goodwin Procter LLP

GOODWIN PROCTER LLP

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### **Assembly Biosciences Announces Proposed Underwritten Offering of Common Stock**

INDIANAPOLIS and SAN FRANCISCO – July 10, 2018 – Assembly Biosciences, Inc. (Nasdaq:ASMB) (“Assembly”), today announced that it intends to offer and sell, subject to market and other conditions, 3,000,000 shares of its common stock in an underwritten public offering. Assembly also intends to grant the underwriters a 30-day option to purchase up to an additional 450,000 shares of common stock offered in the public offering. There can be no assurance as to whether or when the offering may be completed, or as to the actual size or terms of the offering.

Jefferies LLC, Leerink Partners LLC, William Blair & Company, L.L.C. and Mizuho Securities USA LLC are acting as joint bookrunning managers for the offering. Robert W. Baird & Co. Incorporated is acting as lead manager for the offering.

The securities described above are being offered pursuant to two shelf registration statements (File Nos. 333-208806 and 333-222366), which were declared effective by the United States Securities and Exchange Commission (“SEC”) on January 19, 2016 and January 10, 2018, respectively. All of the shares in the proposed offering are to be sold by Assembly.

This press release shall not constitute an offer to sell or the solicitation of an offer to buy these securities, nor shall there be any sale of these securities in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to the registration or qualification under the securities laws of any such jurisdiction. The offering can be made only by means of a prospectus supplement and accompanying prospectus, copies of which may be obtained at the SEC’s website at [www.sec.gov](http://www.sec.gov), or by contacting Jefferies LLC, Attention: Equity Syndicate Prospectus Department, 520 Madison Avenue, 2nd Floor, New York, NY 10022, by telephone at (877) 821-7388, or by email at [prospectus\\_department@jefferies.com](mailto:prospectus_department@jefferies.com); Leerink Partners LLC, Attention: Syndicate Department, One Federal Street, 37th Floor, Boston, MA, 02110, by telephone at (800) 808-7525, ext. 6132, or by email at [syndicate@leerink.com](mailto:syndicate@leerink.com); William Blair & Company, L.L.C., Attention: Prospectus Department, 150 North Riverside Plaza, Chicago, IL 60606, by telephone at (800) 621-0687, or by email at [prospectus@williamblair.com](mailto:prospectus@williamblair.com); or Mizuho Securities USA LLC, Attention: Equity Capital Markets, 320 Park Ave., New York, NY 10022, or by email at [US-ECM@us.mizuho-sc.com](mailto:US-ECM@us.mizuho-sc.com), or by telephone at (212) 205-7600.

#### **About Assembly Biosciences**

Assembly Biosciences, Inc. is a clinical-stage public biotechnology company developing two innovative platform programs: an HBV program advancing a new class of oral therapeutic candidates for the treatment of hepatitis B virus (HBV) infection and a microbiome program developing novel oral synthetic live biotherapeutic candidates for disorders associated with the microbiome. Assembly’s HBV-cure program is advancing multiple drug candidates with the aim of increasing cure rates in patients with chronic HBV. Assembly’s microbiome program consists of a fully integrated platform that includes a robust strain identification and selection process, methods for strain isolation and growth under current Good Manufacturing Practices and a patented delivery system, GEMICEL®, which allows for targeted oral delivery of live biologic and conventional therapies to the lower gastrointestinal tract.

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## **Forward-Looking Statements**

The information in this press release contains forward-looking statements regarding future events, including statements about Assembly's expectations regarding the terms of the offering or completion of the offering. Assembly intends such forward-looking statements to be covered by the safe harbor provisions contained in Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Actual results or developments may differ materially from those projected or implied in these forward-looking statements. Factors that may cause such a difference include, without limitation, risks and uncertainties related to market and other conditions, the satisfaction of customary closing conditions related to the offering and the impact of general economic, industry or political conditions in the United States or internationally. There can be no assurance that Assembly will be able to complete the offering on the anticipated terms, or at all. More information about the risks and uncertainties faced by Assembly are more fully detailed under the heading "Risk Factors" in Assembly's Annual Report on Form 10-K for the year ended December 31, 2017, and its Quarterly Report on Form 10-Q for the quarter ended March 31, 2018 filed with the Securities and Exchange Commission. You should not place undue reliance on these forward-looking statements, which apply only as of the date of this press release. Except as required by law, Assembly assumes no obligation to update publicly any forward-looking statements, whether as a result of new information, future events or otherwise.

## **Contacts**

Investors:

Lauren Glaser

(415) 521-3828

lglaser@assemblybio.com

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### **Assembly Biosciences Announces Pricing of \$144 Million Offering of Common Stock**

INDIANAPOLIS and SAN FRANCISCO– July 11, 2018 – Assembly Biosciences, Inc. (Nasdaq:ASMB) (“Assembly”), today announced the pricing of an underwritten public offering of 4,000,000 shares of its common stock to the public at \$36.00 per share. The offering is expected to close on or about July 16, 2018, subject to the satisfaction of customary closing conditions. The gross proceeds to Assembly from this offering are expected to be \$144 million, before deducting underwriting discounts and commissions and other estimated offering expenses payable by Assembly. Assembly has granted the underwriters a 30-day option to purchase up to an additional 600,000 shares of common stock at the offering price, less the underwriting discounts and commissions. Assembly intends to use the net proceeds from the sale of the common stock to fund clinical trials, nonclinical studies, research and development and for general corporate purposes.

Jefferies LLC, Leerink Partners LLC, William Blair & Company, L.L.C. and Mizuho Securities USA LLC acted as joint bookrunning managers for the offering. Robert W. Baird & Co. Incorporated acted as lead manager, and National Securities Corporation acted as co-manager for the offering.

The securities described above are being offered pursuant to two shelf registration statements (File Nos. 333-208806 and 333-222366), which were declared effective by the United States Securities and Exchange Commission (“SEC”) on January 19, 2016 and January 10, 2018, respectively. A final prospectus supplement relating to this offering will be filed with the SEC and will be available on the SEC’s website at [www.sec.gov](http://www.sec.gov). When available, copies of the final prospectus supplement and accompanying prospectuses may be obtained by contacting Jefferies LLC, Attention: Equity Syndicate Prospectus Department, 520 Madison Avenue, 2nd Floor, New York, NY 10022, by telephone at (877) 821-7388, or by email at [prospectus\\_department@jefferies.com](mailto:prospectus_department@jefferies.com); Leerink Partners LLC, Attention: Syndicate Department, One Federal Street, 37th Floor, Boston, MA, 02110, by telephone at (800) 808-7525, ext. 6132, or by email at [syndicate@leerink.com](mailto:syndicate@leerink.com); William Blair & Company, L.L.C., Attention: Prospectus Department, 150 North Riverside Plaza, Chicago, IL 60606, by telephone at (800) 621-0687, or by email at [prospectus@williamblair.com](mailto:prospectus@williamblair.com); or Mizuho Securities USA LLC, Attention: Equity Capital Markets, 320 Park Ave., New York, NY 10022, or by email at [US-ECM@us.mizuho-sc.com](mailto:US-ECM@us.mizuho-sc.com), or by telephone at (212) 205-7600.

This press release shall not constitute an offer to sell or the solicitation of an offer to buy these securities, nor shall there be any sale of these securities in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to the registration or qualification under the securities laws of any such jurisdiction.

#### **About Assembly Biosciences**

Assembly Biosciences, Inc. is a clinical-stage public biotechnology company developing two innovative platform programs: an HBV program advancing a new class of oral therapeutic candidates for the treatment of hepatitis B virus (HBV) infection and a microbiome program developing novel oral synthetic live biotherapeutic candidates for disorders associated with the microbiome. Assembly’s HBV-cure program is advancing multiple drug candidates with the aim of increasing cure rates in patients with chronic HBV. Assembly’s microbiome program consists of a fully integrated platform that includes a robust strain identification and selection process, methods for strain isolation and growth under current Good Manufacturing Practices and a patented delivery system, GEMICEL®, which allows for targeted oral delivery of live biologic and conventional therapies to the lower gastrointestinal tract.

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## **Forward-Looking Statements**

The information in this press release contains forward-looking statements regarding future events, including statements about Assembly's expectations regarding the terms of the offering or completion of the offering. Assembly intends such forward-looking statements to be covered by the safe harbor provisions contained in Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Actual results or developments may differ materially from those projected or implied in these forward-looking statements. Factors that may cause such a difference include, without limitation, risks and uncertainties related to market and other conditions, the satisfaction of customary closing conditions related to the offering and the impact of general economic, industry or political conditions in the United States or internationally. There can be no assurance that Assembly will be able to complete the offering on the anticipated terms, or at all. More information about the risks and uncertainties faced by Assembly are more fully detailed under the heading "Risk Factors" in Assembly's Annual Report on Form 10-K for the year ended December 31, 2017, and its Quarterly Report on Form 10-Q for the quarter ended March 31, 2018 filed with the Securities and Exchange Commission. You should not place undue reliance on these forward-looking statements, which apply only as of the date of this press release. Except as required by law, Assembly assumes no obligation to update publicly any forward-looking statements, whether as a result of new information, future events or otherwise.

## **Contacts**

Investors:

Lauren Glaser

(415) 521-3828

lglaser@assemblybio.com

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**Assembly Biosciences Announces the Closing of its Offering of Common Stock and Full Exercise of the Underwriters' Option to Purchase Additional Shares**

INDIANAPOLIS and SAN FRANCISCO– July 16, 2018 – Assembly Biosciences, Inc. (Nasdaq:ASMB) (“Assembly”), today announced the closing of its previously announced underwritten public offering of 4,600,000 shares of its common stock to the public at \$36.00 per share, which included the exercise in full by the underwriters of their option to purchase 600,000 additional shares of common stock. The gross proceeds to Assembly from this offering were \$165.6 million, before deducting underwriting discounts and commissions and other estimated offering expenses payable by Assembly. Assembly intends to use the net proceeds from the sale of the common stock to fund clinical trials, nonclinical studies, research and development and for general corporate purposes.

Jefferies LLC, Leerink Partners LLC, William Blair & Company, L.L.C. and Mizuho Securities USA LLC acted as joint bookrunning managers for the offering. Robert W. Baird & Co. Incorporated acted as lead manager, and National Securities Corporation acted as co-manager for the offering.

The securities described above were offered pursuant to two shelf registration statements (File Nos. 333-208806 and 333-222366), which were declared effective by the United States Securities and Exchange Commission (“SEC”) on January 19, 2016 and January 10, 2018, respectively. A final prospectus supplement relating to this offering was filed with the SEC on June 13, 2018 and is available on the SEC’s website at [www.sec.gov](http://www.sec.gov). Copies of the final prospectus supplement and accompanying prospectuses may be obtained by contacting Jefferies LLC, Attention: Equity Syndicate Prospectus Department, 520 Madison Avenue, 2nd Floor, New York, NY 10022, by telephone at (877) 821-7388, or by email at [prospectus\\_department@jefferies.com](mailto:prospectus_department@jefferies.com); Leerink Partners LLC, Attention: Syndicate Department, One Federal Street, 37th Floor, Boston, MA, 02110, by telephone at (800) 808-7525, ext. 6132, or by email at [syndicate@leerink.com](mailto:syndicate@leerink.com); William Blair & Company, L.L.C., Attention: Prospectus Department, 150 North Riverside Plaza, Chicago, IL 60606, by telephone at (800) 621-0687, or by email at [prospectus@williamblair.com](mailto:prospectus@williamblair.com); or Mizuho Securities USA LLC, Attention: Equity Capital Markets, 320 Park Ave., New York, NY 10022, or by email at [US-ECM@us.mizuho-sc.com](mailto:US-ECM@us.mizuho-sc.com), or by telephone at (212) 205-7600.

This press release shall not constitute an offer to sell or the solicitation of an offer to buy these securities, nor shall there be any sale of these securities in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to the registration or qualification under the securities laws of any such jurisdiction.

**About Assembly Biosciences**

Assembly Biosciences, Inc. is a clinical-stage public biotechnology company developing two innovative platform programs: an HBV program advancing a new class of oral therapeutic candidates for the treatment of hepatitis B virus (HBV) infection and a microbiome program developing novel oral synthetic live biotherapeutic candidates for disorders associated with the microbiome. Assembly’s HBV-cure program is advancing multiple drug candidates with the aim of increasing cure rates in patients with chronic HBV. Assembly’s microbiome program consists of a fully integrated platform that includes a robust strain identification and selection process, methods for strain isolation and growth under current Good Manufacturing Practices and a patented delivery system, GEMICEL®, which allows for targeted oral delivery of live biologic and conventional therapies to the lower gastrointestinal tract.

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## **Forward-Looking Statements**

The information in this press release contains forward-looking statements regarding future events, including statements about Assembly's use of proceeds. Assembly intends such forward-looking statements to be covered by the safe harbor provisions contained in Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. More information about the risks and uncertainties faced by Assembly are more fully detailed under the heading "Risk Factors" in Assembly's Annual Report on Form 10-K for the year ended December 31, 2017, and its Quarterly Report on Form 10-Q for the quarter ended March 31, 2018 filed with the Securities and Exchange Commission. You should not place undue reliance on these forward-looking statements, which apply only as of the date of this press release. Except as required by law, Assembly assumes no obligation to update publicly any forward-looking statements, whether as a result of new information, future events or otherwise.

## **Contacts**

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