

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

FORM 8-K

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

Date of Report (Date of earliest event reported): July 12, 2018

ACELRX PHARMACEUTICALS, INC.

(Exact name of registrant as specified in its charter)

Delaware

(State of incorporation)

001-35068

(Commission File No.)

41-2193603

(IRS Employer Identification No.)

**351 Galveston Drive
Redwood City, CA 94063**

(Address of principal executive offices and zip code)

Registrant's telephone number, including area code: **(650) 216-3500**

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

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

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.

Item 8.01. Other Events.

On July 12, 2018, AcelRx Pharmaceuticals, Inc. (the “**Company**”) entered into an underwriting agreement (the “**Underwriting Agreement**”) with Cantor Fitzgerald & Co., as the representative of the several underwriters named therein (collectively, the “**Underwriters**”), relating to the public offering, issuance and sale of 7,272,727 shares of the Company’s common stock, par value \$0.001 per share (the “**Common Stock**”). The price to the public in this offering is \$2.75 per share, and the Underwriters have agreed to purchase the shares from the Company pursuant to the Underwriting Agreement at a price of \$2.6125 per share. The offering is expected to close on July 16, 2018, subject to customary closing conditions. Under the terms of the Underwriting Agreement, the Company also granted the Underwriters an option exercisable for 30 days to purchase up to an additional 1,090,909 shares of Common Stock.

The Underwriting Agreement contains customary representations, warranties and agreements by the Company, customary conditions to closing, indemnification obligations of the Company and the Underwriters, including for liabilities under the Securities Act of 1933, as amended, other obligations of the parties and termination provisions. The representations, warranties and covenants contained in the Underwriting Agreement were made only for purposes of such agreement and as of specific dates, were solely for the benefit of the parties to such agreement, and may be subject to limitations agreed upon by the contracting parties, including being qualified by confidential disclosures exchanged between the parties in connection with the execution of the Underwriting Agreement.

The offering is being made pursuant to the Company’s effective registration statement on Form S-3 and an accompanying prospectus (Registration Statement No. 333-218506) previously filed with the U.S. Securities and Exchange Commission (the “**SEC**”) and a preliminary and final prospectus supplement thereunder. The Underwriting Agreement is filed as Exhibit 1.1 to this report, and the description of the material terms of the Underwriting Agreement is qualified in its entirety by reference to such exhibit. A copy of the opinion of Cooley LLP relating to the legality of the issuance and sale of the shares in the offering is attached as Exhibit 5.1 hereto.

Item 9.01. Financial Statements and Exhibits.

(d) Exhibits.

<u>Exhibit No.</u>	<u>Description</u>
1.1	Underwriting Agreement, dated as of July 12, 2018, by and between AcelRx Pharmaceuticals, Inc. and Cantor Fitzgerald & Co.
5.1	Opinion of Cooley LLP
23.1	Consent of Cooley LLP (contained in Exhibit 5.1)

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 13, 2018

ACELRX PHARMACEUTICALS, INC.

By: /s/ Raffi Asadorian

Raffi Asadorian
Chief Financial Officer

7,272,727 Shares
ACELRX PHARMACEUTICALS, INC.
Common Stock
UNDERWRITING AGREEMENT

July 12, 2018

CANTOR FITZGERALD & CO.
 499 Park Avenue
 New York, New York 10022
 As Representative of the several Underwriters
 named in Schedule I hereto

Ladies and Gentlemen:

AcelRx Pharmaceuticals, Inc., a Delaware corporation (the “**Company**”), proposes to issue and sell to the several underwriters named in Schedule I hereto (the “**Underwriters**”) an aggregate of 7,272,727 shares (the “**Firm Shares**”) of its common stock, \$0.001 par value per share (the “**Common Stock**”). The Company has also granted to the several Underwriters an option to purchase up to 1,090,909 additional shares of Common Stock on the terms set forth in Section 3 hereof (the “**Option Shares**”). The Firm Shares and, if and to the extent such option is exercised, the Option Shares purchased pursuant to this Underwriting Agreement (this “**Agreement**”) are herein collectively called the “**Securities**.”

The Company hereby confirms its agreement with respect to the offering and sale of the Securities to the several Underwriters, for whom you are acting as representative (in such capacity, the “**Representative**”) in connection therewith. To the extent there are no additional underwriters listed on Schedule I, the term “Representative” as used herein shall mean you, as Underwriter, and the term “Underwriters” shall mean either the singular or the plural, as the context requires.

Section 1. Registration Statement and Prospectus.

The Company has prepared and filed with the Securities and Exchange Commission (the “**Commission**”) a shelf registration statement on Form S-3, File No. 333-218506, including a base prospectus (the “**Base Prospectus**”) to be used in connection with the public offering and sale of the Securities. Such registration statement, as amended, including the financial statements, exhibits and schedules thereto, in the form in which it became effective under the Securities Act of 1933, as amended (the “**Act**”), and the rules and regulations promulgated thereunder (collectively, the “**Rules and Regulations**”), including all documents incorporated or deemed to be incorporated by reference therein and any information deemed to be a part thereof at the time of effectiveness pursuant to Rule 430B under the Act, is called the “**Original Registration Statement**.” Any registration statement filed by the Company pursuant to Rule 462(b) under the Act in connection with the offer and sale of the Securities is called the “**Rule 462(b) Registration Statement**,” and from and after the date and time of filing of any such Rule 462(b) Registration Statement the term “**Registration Statement**” shall include the Original Registration Statement and the Rule 462(b) Registration Statement. The preliminary prospectus supplement dated July 11, 2018, describing the Securities and the offering thereof (the “**Preliminary Prospectus Supplement**”), together with the Base Prospectus, is called the “**Preliminary Prospectus**,” and the Preliminary Prospectus and any other prospectus supplement to the Base Prospectus in preliminary form that describes the Securities and the offering thereof and is used prior to the filing of the Prospectus (as defined below), together with the Base Prospectus, is called a “**preliminary prospectus**.” As used herein, the term “**Prospectus**” shall mean the final prospectus supplement to the Base Prospectus that describes the Securities and the offering thereof (the “**Final Prospectus Supplement**”), together with the Base Prospectus, in the form first used by the Underwriters to confirm sales of the Securities or in the form first made available to the Underwriters by the Company to meet requests of purchasers pursuant to Rule 173 under the Act. References herein to the Preliminary Prospectus, any preliminary prospectus and the Prospectus shall refer to both the prospectus supplement and the Base Prospectus components of each such prospectus. As used herein, “**Applicable Time**” is 8:30 a.m. (Eastern time) on July 12, 2018. As used herein, “**free writing prospectus**” has the meaning set forth in Rule 405 under the Act, and “**Time of Sale Prospectus**” means the Preliminary Prospectus, as amended or supplemented immediately prior to the Applicable Time, together with the Issuer General Use Free Writing Prospectuses (as defined below), if any, issued at or prior to the Applicable Time and set forth on Schedule II hereto. As used herein, “**Road Show**” means a “road show” (as defined in Rule 433 under the Act) relating to the offering of the Securities contemplated hereby that is a “written communication” (as defined in Rule 405 under the Act). All references in this Agreement to the Registration Statement, the Preliminary Prospectus, any preliminary prospectus, the Base Prospectus and the Prospectus shall include the documents incorporated or deemed to be incorporated by reference therein. All references in this Agreement to financial statements and schedules and other information which are “contained,” “described,” “disclosed,” “contemplated,” “included,” “set forth” or “stated” in, or “part of” the Registration Statement, the Preliminary Prospectus, any preliminary prospectus, the Base Prospectus, the Time of Sale Prospectus or the Prospectus, and all other references of like import, shall be deemed to mean and include all such financial statements and schedules and other information which is or is deemed to be incorporated by reference in the Registration Statement, the Preliminary Prospectus, any preliminary prospectus, the Base Prospectus, the Time of Sale Prospectus or the Prospectus, as the case may be. All references in this Agreement to amendments or supplements to the Registration Statement, the Preliminary Prospectus, any preliminary prospectus, the Base Prospectus, the Time of Sale Prospectus or the Prospectus shall be deemed to mean and include the filing of any document under the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder (collectively, the “**Exchange Act**”) that is or is deemed to be incorporated by reference in the Registration Statement, the Preliminary Prospectus, any preliminary prospectus, the Base Prospectus, the Time of Sale Prospectus or the Prospectus, as the case may be. All references in this agreement to (a) the Registration Statement, the Preliminary Prospectus, any preliminary prospectus, the Base Prospectus or the Prospectus, any amendments or supplements to any of the foregoing, or any free writing prospectus, shall include any copy thereof filed with the Commission pursuant to its Electronic Data Gathering, Analysis and Retrieval System (“**EDGAR**”) and (b) the Prospectus shall be deemed to include any “electronic Prospectus” (as defined below) provided for use in connection with the offering of the Securities as contemplated by this Agreement. 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.

Section 2. Representations and Warranties of the Company.

(a) The Company represents and warrants to, and agrees with, the several Underwriters, as of the date of this Agreement, as of the First Closing Date (as hereinafter defined) and as of each Option Closing Date (as hereinafter defined), if any, as follows:

(i) The Registration Statement has become effective under the Act. The Company has complied, to the Commission's satisfaction, with all requests of the Commission for additional or supplemental information, if any. At the time the Company's Annual Report on Form 10-K for the year ended December 31, 2017 (the "**Annual Report**") was filed with the Commission, or, if later, at the time the Registration Statement was originally filed with the Commission, the Company met the then-applicable requirements for use of Form S-3 under the Act. The conditions to the use of Form S-3 in connection with the offering and sales of the Securities as contemplated hereby, including General Instruction I.B.1 of Form S-3, have been satisfied. The Company meets the requirements for use of Form S-3 under the Act specified in FINRA Conduct Rule 5110(B)(7)(C)(i). The documents incorporated or deemed to be incorporated by reference in the Registration Statement, the Time of Sale Prospectus and the Prospectus, at the time they were or hereafter are filed with the Commission, or became effective under the Exchange Act, as the case may be, complied and will comply in all material respects with the requirements of the Exchange Act.

(ii) No order preventing or suspending the use of any Preliminary Prospectus or the Prospectus has been issued by the Commission and the Preliminary Prospectus included in the Time of Sale Disclosure Package (as defined below), at the time of filing thereof or the time of first use within the meaning of the Rules and Regulations, complied in all material respects with the requirements of the Act and the Rules and Regulations and did not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading; except that the foregoing shall not apply to statements in or omissions from any Preliminary Prospectus in reliance upon, and in conformity with, written information furnished to the Company by you, or by any Underwriter through you, specifically for use therein; it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in Section 6(f).

(iii) Each preliminary prospectus and the Prospectus when filed complied in all material respects with the Act and, if filed by electronic transmission pursuant to EDGAR, was identical (except as may be permitted by Regulation S-T under the Act) to the copy thereof delivered to the Underwriters for use in connection with the offer and sale of the Securities. As of the time any part of each of the Original Registration Statement and the 462(b) Registration Statement (or any post-effective amendment thereto) became or becomes effective and at all other subsequent times until expiration of the Prospectus Delivery Period (as defined below), upon the filing or first use within the meaning of the Rules and Regulations of the Prospectus (or any supplement to the Prospectus), at all other subsequent times until expiration of the Prospectus Delivery Period and at the First Closing Date and each Option Closing Date, (A) the Registration Statement and the Prospectus (in each case, as so amended and/or supplemented) complied or will comply in all material respects with the requirements of the Act and the Rules and Regulations, (B) the Registration Statement (as so amended) did not and will not include an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading, and (C) the Prospectus (as so supplemented) did not and will not include an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances in which they are or were made, not misleading; except that each of the foregoing shall not apply to statements in or omissions from any such document in reliance upon, and in conformity with, written information furnished to the Company by you, or by any Underwriter through you, specifically for use therein; it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in Section 6(f). No stop order suspending the effectiveness of the Registration Statement has been issued, and no proceeding for that purpose has been initiated or communicated to the Company, is pending, or, to the Company's knowledge, has been threatened by the Commission.

(iv) As of the Applicable Time, the First Closing Date and each applicable Option Closing Date, neither (A) the Time of Sale Prospectus and the information on Schedule III hereto, all considered together (collectively, the **“Time of Sale Disclosure Package”**), nor (B) any individual Issuer Limited Use Free Writing Prospectus, when considered together with the Time of Sale Disclosure Package, includes, included or will include any untrue statement of a material fact or omits, omitted or will omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading. The preceding sentence does not apply to statements in or omissions from the Time of Sale Disclosure Package or any Issuer Limited Use Free Writing Prospectus, if any, based upon and in conformity with written information furnished to the Company by you or by any Underwriter through you specifically for use therein; it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in Section 6(f). As used in this paragraph and elsewhere in this Agreement:

(1) **“Issuer Free Writing Prospectus”** means any “issuer free writing prospectus,” as defined in Rule 433 under the Act, relating to the Securities in the form filed or required to be filed with the Commission or, if not required to be filed, in the form retained in the Company’s records pursuant to Rule 433(g) under the Act.

(2) **“Issuer General Use Free Writing Prospectus”** means any Issuer Free Writing Prospectus that is intended for general distribution to prospective investors, as evidenced by its being specified in Schedule II to this Agreement.

(3) **“Issuer Limited Use Free Writing Prospectus”** means any Issuer Free Writing Prospectus that is not an Issuer General Use Free Writing Prospectus.

(v) (A) Each 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 Securities or until any earlier date that the Company notified or notifies the Representative as described in Section 4(a)(iii)(B), did not, does not and will not include any information that conflicted, conflicts or will conflict with the information contained in the Registration Statement, the Preliminary Prospectus or the Prospectus. The foregoing sentence does not apply to statements in or omissions from any Issuer Free Writing Prospectus based upon and in conformity with written information furnished to the Company by you or by any Underwriter through you specifically for use therein; it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in Section 6(f).

(B) (1) At the time of filing the Registration Statement, (2) at the date hereof and (3) as of the determination date referenced in Rule 164(h) under the Act, the Company was not, is not or will not be (as applicable) an “ineligible issuer,” as defined in Rule 405 under the Act, including the Company in the preceding three years not having been convicted of a felony or misdemeanor or having been made the subject of a judicial or administrative decree or order as described in Rule 405 under the Act (without taking account of any determination by the Commission pursuant to Rule 405 that it is not necessary that the Company be considered an ineligible issuer), nor an “excluded issuer” as defined in Rule 164 under the Act.

(C) Each Issuer Free Writing Prospectus has been or will be filed with the Commission in accordance with the requirements of the Act. Each Issuer Free Writing Prospectus satisfied and will satisfy , as of its issue date and at all subsequent times through the completion of the public offer and sale of the Securities, all conditions to use thereof as set forth in Rules 164 and 433 under the Act.

(D) Except for the Issuer General Use Free Writing Prospectuses, if any, identified on Schedule II, and Road Shows, if any, furnished to you before first use, the Company has not prepared, used or referred to, and will not, without your prior written consent, prepare, use or refer to, any free writing prospectus. Each Road Show, when considered together with the Time of Sale Prospectus, did not, as of the Applicable Time, include any untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(vi) The documents incorporated by reference in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, when they became effective under the Exchange Act or at the time they were or hereafter are filed with the Commission, as the case may be, complied and will comply in all material respects to the requirements of the Act, the Rules and Regulations or the Exchange Act, as applicable, and none of such documents contained any untrue statement of a material fact or omitted to state any material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading.

(vii) The financial statements (which term as used in this Agreement includes the related notes thereto) of the Company filed with the Commission as part of the Registration Statement, the Time of Sale Prospectus and the Prospectus comply in all material respects with the requirements of the Act and fairly present, in all material respects, the consolidated financial position of the Company and its subsidiaries as of the dates indicated and the results of operations and changes in stockholders' equity and cash flows for the periods therein specified in conformity with generally accepted accounting principles in the United States consistently applied throughout the periods involved (except in the case of unaudited financial statements, which are subject to normal year-end adjustments and do not contain certain footnotes as permitted by the applicable rules of the Commission); the supporting schedules included in the Registration Statement present fairly the information required to be stated therein; all non-GAAP financial measures (as such term is defined by the rules and regulations of the Commission), if any, included in the Registration Statement, the Time of Sale Disclosure Package, any free writing prospectus and the Prospectus comply with Regulation G under the Exchange Act and Item 10 of Regulation S-K under the Act, as applicable; and, except as disclosed in the Time of Sale Disclosure Package and the Prospectus, there are no material off-balance sheet arrangements (as defined in Item 303(a)(4)(ii) of Regulation S-K under the Act) or any other relationships with unconsolidated entities or other persons, that may have a material current or, to the knowledge of the Company, material future effect on the Company's financial condition, results of operations, liquidity, capital expenditures, capital resources or significant components of revenue or expenses. 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. No other financial statements or schedules are required to be included in the Registration Statement, the Time of Sale Prospectus or the Prospectus. The financial data set forth in each of the Registration Statement, the Time of Sale Prospectus and the Prospectus under the caption "Capitalization" fairly presents the information set forth therein on a basis consistent with that of the audited financial statements contained in the Registration Statement, the Time of Sale Prospectus and the Prospectus. OUM & Co. LLP, which has expressed its opinion with respect to the financial statements and schedules filed with the Commission as part of the Registration Statement, the Time of Sale Prospectus and the Prospectus, is (x) an independent public accounting firm as required by the Act, the Exchange Act, the Rules and Regulations and the Public Company Accounting Oversight Board ("**PCAOB**"), (y) a registered public accounting firm (as defined by the PCAOB) whose registration has not been suspended or revoked and who has not requested such registration to be withdrawn and (z) in compliance with applicable requirements relating to the qualification of accountants under Rule 2-01 of Regulation S-X under the Act. To the Company's knowledge, no person who has been suspended or barred from being associated with a registered public accounting firm, or who has failed to comply with any sanction pursuant to Rule 5300 promulgated by the PCAOB, has participated in or otherwise aided in the preparation of, or audited, the financial statements, supporting schedules or other financial data filed with the Commission as part of the Registration Statement, the Time of Sale Prospectus or the Prospectus.

(viii) The Company has been duly organized and is validly existing as a corporation in good standing under the laws of its jurisdiction of incorporation. The Company has full corporate power and authority to own, lease and operate its properties and conduct its business as currently being carried on and as described in the Registration Statement, the Time of Sale Disclosure Package and Prospectus, and is duly qualified to do business as a foreign corporation in good standing in each jurisdiction in which it owns or leases real property or in which the conduct of its business makes such qualification necessary and in which the failure to so qualify would have a material adverse effect upon the business, prospects, management, properties, operations, condition (financial or otherwise) or results of operations of the Company (“**Material Adverse Effect**”).

(ix) Except as otherwise disclosed in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, subsequent to the respective dates as of which information is given in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus: (A) the Company and its subsidiaries, considered as one entity, have not incurred any material liabilities or obligations, direct or contingent, entered into any material transactions, or declared or paid any dividends or made any distribution of any kind with respect to their capital stock, or entered into any transactions not in the ordinary course of business; (B) there has not been any change in the capital stock (other than a change in the number of outstanding shares of Common Stock due to the issuance of shares upon the exercise, vesting or conversion of options, restricted stock units, warrants, rights or convertible securities outstanding as of the date of this Agreement), or any material change in the short-term or long-term debt, or any issuance of options, restricted stock units, warrants, convertible securities or other rights to purchase the capital stock (except pursuant to equity compensation plans or arrangements described in the Time of Sale Disclosure Package and the Prospectus) of the Company or its subsidiaries; and (C) there has been no material adverse change in the general affairs, condition (financial or otherwise), business, prospects, management, properties, operations or results of operations of the Company (any such change being referred to herein as a “**Material Adverse Change**”) or any development which could reasonably be expected to result in any Material Adverse Change.

(x) Except as set forth in the Time of Sale Disclosure Package and in the Prospectus, there is no pending, or, to the knowledge of the Company, threatened or contemplated, action, suit, investigation or proceeding (A) to which the Company or any of its subsidiaries is a party or (B) which has as the subject thereof any officer or director of the Company or any of its subsidiaries, any employee benefit plan sponsored by the Company or any property or assets owned or leased by the Company or any of its subsidiaries before or by any court or Governmental Authority (as defined below), or any arbitrator, which, individually or in the aggregate, would reasonably be expected to have a Material Adverse Effect, or would materially and adversely affect the ability of the Company to perform its obligations under this Agreement or which are otherwise material in the context of the sale of the Securities (except that the foregoing representation as to any non-employee outside director of the Company with respect to any pending action, suit, investigation or proceeding shall be to the knowledge of the Company). There are no current or, to the knowledge of the Company, pending, legal, governmental or regulatory actions, suits or proceedings (1) to which the Company or any of its subsidiaries is subject or (2) which has as the subject thereof any officer or director of the Company or any of its subsidiaries, any employee plan sponsored by the Company or any property or assets owned or leased by the Company or any of its subsidiaries, that are required to be described in the Registration Statement, Time of Sale Disclosure Package and Prospectus by the Act, the Rules and Regulations or the Exchange Act and that have not been so described (except that the foregoing representation as to any non-employee outside director of the Company shall be to the knowledge of the Company).

(xi) There are no statutes, regulations, contracts, agreements or documents that are required to be described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus or required to be filed as exhibits to the Registration Statement by the Act, the Rules and Regulations or the Exchange Act that have not been so described or filed.

(xii) This Agreement has been duly authorized, executed and delivered by the Company, and constitutes a valid, legal and binding obligation of the Company, enforceable in accordance with its terms, except as rights to indemnity hereunder may be limited by federal or state securities laws and except as such enforceability may be limited by bankruptcy, insolvency, reorganization or similar laws affecting the rights of creditors generally and subject to general principles of equity. The Company's execution, delivery and performance of this Agreement and the consummation of the transactions contemplated hereby will not (A) conflict with or result in a breach or violation of any of the terms or provisions of, or constitute a default or a Debt Repayment Event under, or result in the creation or imposition of any lien, charge or encumbrance upon any property or assets of the Company or any of its subsidiaries pursuant to any indenture, mortgage, deed of trust, loan agreement or other agreement or instrument to which the Company or any of its subsidiaries is a party or by which the Company or any of its subsidiaries is bound or to which any of the property or assets of the Company or any of its subsidiaries is subject, (B) result in any violation of the provisions of the charter or by-laws, partnership agreement, operating agreement or similar organizational document of the Company or its subsidiaries or (C) result in the violation of any law, administrative regulation or statute or any judgment, order, rule, regulation or decree of any court or arbitrator or federal, state, local or foreign governmental agency or regulatory authority having jurisdiction over the Company or any of its properties or assets (each, a "**Governmental Authority**"), except in the case of clauses (A) or (C), for such conflicts, breaches or violations which would not result in a Material Adverse Effect. No consent, approval, authorization or order of, or registration or filing with, any Governmental Authority is required to be obtained or made by the Company for the execution, delivery and performance of this Agreement or for the consummation of the transactions contemplated hereby, including the issuance or sale of the Securities by the Company, except such as have been obtained or such as may be required under the Act, the rules of the Financial Industry Regulatory Authority, Inc. ("**FINRA**") or state securities or blue sky laws; and the Company has full corporate power and authority to enter into this Agreement and to consummate the transactions contemplated hereby, including the authorization, issuance and sale of the Securities as contemplated by this Agreement. As used herein, a "**Debt Repayment Event**" means any event or condition which gives, or with the giving of notice or lapse of time would give, the holder of any note, loan, debenture, instrument or other evidence of indebtedness (or any person acting on such holder's behalf) the right to require the repurchase, redemption or repayment of all or a portion of such indebtedness by the Company or any of its subsidiaries.

(xiii) All of the issued and outstanding capital stock of the Company, including the outstanding shares of Common Stock, are duly authorized and validly issued, fully paid and nonassessable, have been issued in compliance with all federal, state and foreign securities laws, were not issued in violation of or subject to any preemptive rights or other rights to subscribe for or purchase securities that have not been duly waived or satisfied in writing (a copy of which has been delivered to counsel to the Representative), and the holders thereof are not subject to personal liability by reason of being such holders; the Securities which may be sold hereunder by the Company have been duly authorized for issuance and sale pursuant to this Agreement and, when issued and delivered by the Company, and paid for by the Underwriters in accordance with the terms of this Agreement, will have been validly issued and will be fully paid and nonassessable, and the holders thereof will not be subject to personal liability by reason of being such holders; and the capital stock of the Company, including the Common Stock and the Securities, conforms in all material respects to the description thereof in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus. There are no preemptive rights, rights of first refusal or other rights to subscribe for or to purchase, or any restriction upon the voting or transfer of, any shares of Common Stock pursuant to the Company's charter, by-laws or any agreement or other instrument to which the Company is a party or by which the Company is bound. Neither the filing of the Registration Statement nor the offering and sale of the Securities as contemplated by this Agreement gives rise to any rights for or relating to the registration or inclusion in the offering of the Securities contemplated by this Agreement of any shares of Common Stock or other securities of the Company that have not been duly waived in writing (a copy of which has been delivered to counsel to the Representative). Except as described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, there are no options, restricted stock units, warrants, agreements, contracts or other rights in existence to purchase or acquire from, the Company any shares of the capital stock of the Company, or any securities convertible into, exchangeable or exercisable for, any such capital stock. The Company has the authorized, issued and outstanding capitalization set forth in the Registration Statement, the Time of Sale Prospectus and the Prospectus under the caption "Capitalization." The description of the Company's stock option, stock bonus and other stock plans or arrangements, and the options, restricted stock units or other rights granted thereunder, set forth in the Time of Sale Disclosure Package and the Prospectus accurately and fairly presents the information required to be shown with respect to such plans, arrangements, options, restricted stock units and rights.

(xiv) The Company and its subsidiaries hold, and are operating in compliance in all material respects with, all franchises, grants, authorizations, licenses, permits, easements, consents, certificates and orders of any Governmental Authority or self-regulatory body required for the conduct of their respective business and, to the knowledge of the Company, all such franchises, grants, authorizations, licenses, permits, easements, consents, certifications and orders are valid and in full force and effect; and the Company and its subsidiaries have not received notice of any revocation or modification of any such franchise, grant, authorization, license, permit, easement, consent, certification or order or have reason to believe that any such franchise, grant, authorization, license, permit, easement, consent, certification or order will not be renewed in the ordinary course.

(xv) The Company and its subsidiaries have good and marketable title to all property (whether real or personal) described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus as being owned by it, in each case free and clear of all material liens, claims, security interests, other encumbrances or defects, except such as are described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus. The property held under lease by the Company or any of its subsidiaries are held under valid, subsisting and enforceable leases with only such exceptions with respect to any particular lease as do not interfere in any material respect with the conduct of the business of the Company or such subsidiary or use made or proposed to be made of such property.

(xvi) Except as described in the Registration Statement, the Time of Sale Disclosure Package and in the Prospectus, the Company and its subsidiaries own, possess, have obtained valid and enforceable licenses for, or can acquire on reasonable terms, all Intellectual Property necessary for the conduct of their respective businesses as now conducted or as described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus as proposed to be conducted, except as such failure to own, possess, have licenses for or acquire such Intellectual Property would not result in a Material Adverse Effect. Furthermore, (A) to the knowledge of the Company, there is no infringement, misappropriation or violation by third parties of any such Intellectual Property; (B) there is no pending or, to the knowledge of the Company, threatened, action, suit, proceeding or claim by others challenging the Company's or any of its subsidiaries' rights in or to any such Intellectual Property, and the Company is unaware of any facts which would form a reasonable basis for any such action, suit, proceeding or claim; (C) the Intellectual Property owned by the Company and its subsidiaries, and to the knowledge of the Company, the Intellectual Property licensed to the Company and its subsidiaries, has not been adjudged invalid or unenforceable, in whole or in part, and there is no pending or threatened action, suit, proceeding or claim by others challenging the validity or scope of any such Intellectual Property, and the Company is unaware of any facts which would form a reasonable basis for any such claim; (D) there is no pending or, to the knowledge of the Company, threatened action, suit, proceeding or claim by others asserting that the Company or any of its subsidiaries infringes, misappropriates or otherwise violates or would, upon the commercialization of any product or service described in the Registration Statement, the Time of Sale Prospectus or the Prospectus as under development, infringe or violate any Intellectual Property or other proprietary rights of others, the Company has not received any written notice of such claim, and the Company is unaware of any other fact which would form a reasonable basis for any such claim; and (E) to the knowledge of the Company, no employee of the Company or any of its subsidiaries is in or has ever 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 or any of its subsidiaries or actions undertaken by the employee while employed with the Company or any of its subsidiaries, except as such violation would not result in a Material Adverse Effect. The Company and its subsidiaries have complied in all material respects with the terms of each agreement pursuant to which Intellectual Property has been licensed to the Company, and all such agreements are in full force and effect. The product candidates described in the Registration Statement, the Time of Sale Prospectus and the Prospectus as under development by the Company fall within the scope of the claims of one or more patents owned by, or exclusively licensed to, the Company or its subsidiaries. As used herein, "**Intellectual Property**" shall mean all patents, patent applications, trade and service marks, trade and service mark registrations, trade names, copyrights, licenses, inventions, trade secrets, domain names, technology, know-how and other intellectual property.

(xvii) Except as described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, each of the Company and each of its subsidiaries: (i) has not received any unresolved U.S. Food and Drug Administration (“**FDA**”) Form 483 or other Governmental Authority notice of inspectional observations, notice of adverse filing, warning letter, untitled letter or other correspondence or notice from the FDA, or any other court or arbitrator or federal, state, local or foreign governmental or regulatory authority, alleging or asserting noncompliance with the Federal Food, Drug and Cosmetic Act (21 U.S.C. § 301 et seq.) or any other applicable laws or regulations, or received any requests or requirements to make changes to the Company’s products by such Governmental Authority; (ii) is and has been in material compliance with applicable health care laws, including without limitation, the Federal Food, Drug and Cosmetic Act (21 U.S.C. § 301 et seq.), the federal Anti-Kickback Statute (42 U.S.C. § 1320a-7b(b)), the civil False Claims Act (31 U.S.C. § 3729 et seq.), the administrative False Claims Law (42 U.S.C. § 1320a-7b(a)), the Civil Monetary Penalties Law (42 U.S.C. § 1320a-7a), the Health Insurance Portability and Accountability Act of 1996 (42 U.S.C. § 1320d et seq.), as amended by the Health Information Technology for Economic and Clinical Health Act of 2009 (collectively, “**HIPAA**”), the exclusion laws (42 U.S.C. § 1320a-7), the Physician Payment Sunshine Act (42 U.S.C. § 1320a-7h), all 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 HIPAA, Medicare (Title XVIII of the Social Security Act), Medicaid (Title XIX of the Social Security Act), and the regulations promulgated pursuant to such laws, and comparable state laws, and all other local, state, federal, national, supranational and foreign laws, manual provisions, policies and administrative guidance relating to the regulation of the Company and its subsidiaries or their products (collectively, the “**Health Care Laws**”); (iii) possesses all material licenses, certificates, approvals, clearances, registrations, exemptions, authorizations, permits and supplements or amendments thereto required by any such Health Care Laws and/or to carry on its businesses as now conducted (collectively, “**Authorizations**”) and such Authorizations are valid and in full force and effect and neither the Company nor any of its subsidiaries is in violation of any term of any such Authorizations; (iv) has not received notice of any ongoing claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action from any Governmental Authority or third party alleging any material violation of any Health Care Laws or Authorizations and has no knowledge that any such Governmental Authority or third party is considering any such claim, litigation, arbitration, action, suit, investigation or proceeding; (v) has not received notice that any Governmental Authority has taken, is taking or intends to take action to limit, suspend, modify or revoke any Authorizations and has no knowledge that any such Governmental Authority is considering such action; (vi) has filed, obtained, maintained or submitted all reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments thereto as required by any Health Care Laws or Authorizations and all such reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments were complete, correct and not misleading on the date filed (or were corrected or supplemented by a subsequent submission); (vii) has not, either voluntarily or involuntarily, initiated, conducted, or issued or caused to be initiated, conducted or issued, any recall, market withdrawal or replacement, safety alert, post-sale warning, “dear doctor” letter, or other notice or action relating to the alleged lack of safety, efficacy or regulatory compliance of any product or any alleged product defect or violation and, to the Company’s knowledge, no third party has initiated or conducted any such notice or action and there are no facts which are reasonably likely to cause, and the Company has not received any written notice from the FDA or any other Governmental Authority regarding, a recall, market withdrawal or replacement of any Company product sold or intended to be sold by the Company, a material change in the marketing classification or a material adverse change in the labeling of any such Company products, or a termination or suspension of the manufacturing, marketing, or distribution of such Company products; (viii) is not a party to any corporate integrity agreement, deferred prosecution agreement, monitoring agreement, consent decree, settlement order, or similar agreements, or has any reporting obligations pursuant to any such agreement, plan or correction or other remedial measure entered into with any Governmental Authority; (ix) has not, nor has any officer, director, employee, or, to the knowledge of the Company, any agent or distributor of the Company, made an untrue statement of a material fact or a fraudulent statement to the FDA or any other Governmental Authority, failed to disclose a material fact required to be disclosed to the FDA or any other Governmental Authority, or committed an act, made a statement, or failed to make a statement, in each such case, related to the business of the Company that, at the time such disclosure was made, would reasonably be expected to provide a basis for the FDA to invoke its policy respecting “Fraud, Untrue Statements of Material Facts, Bribery, and Illegal Gratuities”, set forth in 56 Fed. Reg. 46191 (September 10, 1991) or for the FDA or any other Governmental Authority to invoke any similar policy; (x) has not, nor has any officer, director, employee, or, to the knowledge of the Company, any agent or distributor of the Company, been debarred or convicted of any crime or engaged in any conduct for which debarment is mandated by 21 U.S.C. § 335a(a) or any similar law or authorized by 21 U.S.C. § 335a(b) or any similar law applicable in other jurisdictions in which material quantities of any of the Company’s products or the Company’s product candidates are sold or intended by the Company to be sold; and (xi) neither the Company, its subsidiaries nor their officers, directors, employees, agents or contractors has been or is currently excluded from participation in the Medicare and Medicaid programs or any other state or federal health care program.

(xviii) The studies, tests and preclinical and clinical trials conducted or sponsored by or on behalf of the Company and its subsidiaries were and, if still pending, are, in all material respects, being conducted in accordance with applicable laws and Authorizations, including, without limitation, the Federal Food, Drug and Cosmetic Act and the rules and regulations promulgated thereunder; except to the extent disclosed in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, the Company has no knowledge of any studies, tests or trials the results of which the Company believes reasonably call into question the study, test or trial results described or referred to in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus when viewed in the context in which such results are described and the clinical state of development; and neither the Company nor any of its subsidiaries have received any notices or correspondence from any Governmental Authority requiring the termination, suspension or material modification of any studies, tests or preclinical or clinical trials conducted by or on behalf of the Company.

(xix) Neither the Company nor any of its subsidiaries is in violation of its charter or by-laws, operating agreement, partnership agreement or similar organizational documents, as applicable, or is in material breach of or otherwise in default in any material respect of, and no event has occurred which, with notice or lapse of time or both, would constitute such a default in the performance of any material obligation, agreement or condition contained in any bond, debenture, note, indenture, loan agreement or any other material contract, lease, license, franchise or other instrument to which the Company or any of its subsidiaries is subject or by which it or any of them may be bound, or to which any of the material property or assets of the Company or any of its subsidiaries is subject.

(xx) Each of the Company and its subsidiaries has duly and properly filed or caused to be filed with the U.S. Patent and Trademark Office (the “PTO”) and applicable foreign and international patent authorities all patent applications owned by the Company and its subsidiaries (the “**Company Patent Applications**”). To the knowledge of the Company, each of the Company and its subsidiaries has complied with the PTO’s duty of candor and disclosure for the Company Patent Applications and has made no material misrepresentation in the Company Patent Applications. To the knowledge of the Company, except as disclosed in the Time of Sale Disclosure Package and the Prospectus, the Company Patent Applications disclose patentable subject matters, and none of the Company nor its subsidiaries has been notified of any inventorship challenges nor has any interference been declared or provoked nor is any material fact known by the Company or its subsidiaries that would preclude the issuance of patents with respect to the Company Patent Applications or would render such patents invalid or unenforceable, except in each case as would not individually or in the aggregate have a Material Adverse Effect. To the knowledge of the Company, except as disclosed in the Time of Sale Disclosure Package and the Prospectus, no third party possesses rights to the Company’s or its subsidiaries’ Intellectual Property that, if exercised, could enable such party to develop products competitive to those the Company or any of its subsidiary intends to develop as described in each of the Time of Sale Disclosure Package and the Prospectus.

(xxi) The Company and its subsidiaries have timely filed all material federal, state, local and foreign tax returns required to be filed, and are not in default in the payment of any taxes which were payable pursuant to said returns or any assessments, fines or penalties with respect thereto, other than (A) amounts currently payable without penalty or interest or (B) amounts which the Company is contesting in good faith. There is no pending dispute with any taxing authority relating to any of such returns, and the Company has no knowledge of any proposed liability for any tax to be imposed upon the properties or assets of the Company or any of its subsidiaries for which there is not an adequate reserve reflected in the Company’s financial statements included in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus. There are no material liens for unpaid taxes on any of the assets of the Company or any of its subsidiaries, other than liens for Taxes arising solely by operation of law and not yet due and payable.

(xxii) Prior to the later of (A) the expiration or termination of the option granted to the several Underwriters in Section 3 and (B) the completion of the Underwriters’ distribution of the Securities, the Company has not distributed and will not distribute any prospectus or other offering material in connection with the offering and sale of the Securities other than the Registration Statement, the Time of Sale Disclosure Package, the Prospectus and any Permitted Free Writing Prospectus (as defined below). Except as set forth on Schedule II, the Company has not made and will not make any offer relating to the Securities that would constitute a free writing prospectus, except in accordance with the provisions of Section 4(a)(xvii) of this Agreement.

(xxiii) The Company is subject to and in compliance in all material respects with the reporting requirements of Section 13 or Section 15(d) of the Exchange Act and the listing requirements of the Nasdaq Global Market (“**Nasdaq**”). The Common Stock is registered pursuant to Section 12(b) of the Exchange Act and is listed on Nasdaq and the Company has taken no action designed to, or likely to have the effect of, terminating the registration of the Common Stock under the Exchange Act or delisting the Common Stock from Nasdaq. The Company has not received any notification that the Commission or Nasdaq is contemplating terminating such registration or listing. The Company has filed with Nasdaq a notification of the listing of the Securities on Nasdaq. Except as previously disclosed to counsel for the Underwriters or as set forth in the Time of Sale Disclosure Package and the Prospectus, there are no affiliations with members of FINRA among the Company’s officers or directors or, to the knowledge of the Company, any five percent or greater stockholders of the Company that are affiliated with any of the Company’s officers or directors.

(xxiv) Each of the Company's "subsidiaries" (for purposes of this Agreement, as defined in Rule 405 under the Act) has been duly organized, as the case may be, and is validly existing as a corporation, partnership or limited liability company, as applicable, in good standing under the laws of the jurisdiction of its organization and has the requisite power and authority to own, lease and operate its properties and to conduct its business as described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus. Each of the Company's subsidiaries is duly qualified as a foreign corporation, partnership or limited liability company, as applicable, to transact business and is in good standing in each jurisdiction in which such qualification is required, whether by reason of the ownership or leasing of property or the conduct of business. All of the issued and outstanding capital stock or other equity or ownership interests of each of the Company's subsidiaries have been duly authorized and validly issued, are fully paid and nonassessable and are owned by the Company, directly or through subsidiaries, free and clear of any security interest, mortgage, pledge, lien, encumbrance or adverse claim. 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 Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2017.

(xxv) The Company and its subsidiaries make and keep accurate books and records and maintain a system of internal accounting controls sufficient to provide reasonable assurances that: (A) transactions are executed in accordance with management's general or specific authorization; (B) transactions are recorded as necessary to permit preparation of financial statements in conformity with generally accepted accounting principles in the United States and to maintain accountability for assets; (C) access to assets is permitted only in accordance with management's general or specific authorization; (D) the recorded accountability for assets is compared with existing assets at reasonable intervals and appropriate action is taken with respect to any differences and (E) the interactive data in eXtensible Business Reporting Language included or incorporated by reference in the Registration Statement, the Time of Sale Prospectus or the Prospectus fairly presents in all material respects the information called for and is prepared in accordance with the Commission's rules and guidelines applicable thereto. The Company's internal control over financial reporting is effective and none of the Company, its board of directors or its audit committee is aware of any "significant deficiencies" or "material weaknesses" (each as defined by the PCAOB), whether or not remediated, in its internal control over financial reporting, or any fraud, whether or not material, that involves management or other employees of the Company or its subsidiaries who have a significant role in the Company's internal controls; and since the end of the latest audited fiscal year, there has been no change in the Company's internal control over financial reporting that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting and the Company is aware of no such change during its most recent fiscal quarter. The Company's board of directors has, subject to the exceptions and cure periods specified in the applicable Nasdaq Stock Market Rules ("**Exchange Rules**") and the Exchange Act, validly appointed an audit committee to oversee internal accounting controls whose composition satisfies the applicable requirements of the Exchange Rules and the Company's board of directors and/or the audit committee has adopted a charter that satisfies the requirements of the Exchange Rules.

(xxvi) Other than as contemplated by this Agreement, the Company has not incurred any liability for any finder's or broker's fee or agent's commission in connection with the execution and delivery of this Agreement or the consummation of the transactions contemplated hereby.

(xxvii) The Company and each of its subsidiaries carries, or is covered by, insurance from insurers with appropriately rated claims-paying abilities in such amounts and covering such risks as is reasonably deemed adequate for the conduct of their respective business and the value of their respective properties and as is customary for companies engaged in similar businesses in similar industries; all policies of insurance and any fidelity or surety bonds insuring the Company, its subsidiaries or their respective business, assets, employees, officers and directors are in full force and effect; the Company and its subsidiaries are in compliance with the terms of such policies and instruments in all material respects; there are no claims by the Company or any of its subsidiaries under any such policy or instrument as to which any insurance company is denying liability or defending under a reservation of rights clause; and the Company has no reason to believe that it will not be able to renew its existing insurance coverage for itself and its subsidiaries as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business at a cost that would not have a Material Adverse Effect.

(xxviii) The Company is not and, after giving effect to the offering and sale of the Securities or after the application of the proceeds therefrom as described under “Use of Proceeds” in the Registration Statement, the Time of Sale Prospectus or the Prospectus, will not be an “investment company,” as such term is defined in the Investment Company Act of 1940, as amended (the “**Investment Company Act**”).

(xxix) The Company is in compliance in all material respects with all applicable provisions of the Sarbanes-Oxley Act and the rules and regulations of the Commission thereunder.

(xxx) The Company has established and maintains disclosure controls and procedures (as defined in Rules 13a-15 and 15d-15 under the Exchange Act) and such controls and procedures (A) are designed to and are effective in ensuring that material information relating to the Company, including its consolidated subsidiaries, is made known to the principal executive officer and the principal financial officer of the Company; and (B) have been evaluated by management of the Company for effectiveness as of the end of the Company’s most recent fiscal quarter. The Company has utilized such controls and procedures in preparing and evaluating the disclosures in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus.

(xxxi) Neither the Company nor any of its subsidiaries nor, to the knowledge of the Company, any director, officer, agent, employee, affiliate or other person acting on behalf of the Company or any of its subsidiaries has, in the course of its actions for, or on behalf of, the Company or any of its subsidiaries (A) used any corporate funds for any unlawful contribution, gift, entertainment or other unlawful expenses relating to political activity; (B) made any direct or indirect unlawful payment to any domestic government official, “foreign official” (as defined in the U.S. Foreign Corrupt Practices Act of 1977, as amended, and the rules and regulations thereunder (collectively, the “**FCPA**”) or employee from corporate funds; (C) violated or is in violation of any provision of the FCPA or any applicable non-U.S. anti-bribery statute or regulation; or (D) made any unlawful bribe, rebate, payoff, influence payment, kickback or other unlawful payment to any domestic government official, foreign official or employee; and the Company and its subsidiaries and, to the knowledge of the Company, the Company’s affiliates have conducted their respective businesses in compliance with the FCPA and have instituted and maintain policies and procedures designed to ensure, and which are reasonably expected to continue to ensure, continued compliance therewith. The operations of the Company and its subsidiaries are, and have been conducted at all times, in compliance with applicable financial recordkeeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, the money laundering statutes of all applicable jurisdictions, the rules and regulations thereunder and any related or similar applicable rules, regulations or guidelines, issued, administered or enforced by any governmental agency (collectively, the “**Money Laundering Laws**”) and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any of its subsidiaries with respect to the Money Laundering Laws is pending or, to the best knowledge of the Company, threatened. Neither the Company nor any of its subsidiaries nor, to the best of the Company’s knowledge, any employee or agent of the Company or any subsidiary, has made any contribution or other payment to any official of, or candidate for, any federal, state or foreign office in violation of any law or of the character required to be disclosed in the Registration Statement, the Time of Sale Prospectus or the Prospectus.

(xxxii) Neither the Company nor any of its subsidiaries nor, to the knowledge of the Company, any director, officer, agent, employee or person acting on behalf of the Company or any of its subsidiaries is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Department of the Treasury (“**OFAC**”); and the Company will not directly or indirectly use the proceeds of this offering, or lend, contribute or otherwise make available such proceeds to any subsidiary, or any joint venture partner or other person or entity, for the purpose of financing the activities of or business with any person, or in any country or territory, that currently is the subject of any U.S. sanctions administered by OFAC or 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 U.S. sanctions administered by OFAC.

(xxxiii) To the knowledge of the Company, no transaction has occurred between or among the Company, on the one hand, and any of the Company’s officers, directors or five percent stockholders or any affiliate or affiliates of any such officer, director or five percent stockholder that is required to be described under the Rules and Regulations that is not so described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus. The Company has not, directly or indirectly, extended or maintained credit, or arranged for the extension of credit, or renewed an extension of credit, in the form of a personal loan to or for any of its directors or executive officers in violation of applicable laws, including Section 402 of the Sarbanes-Oxley Act.

(xxxiv) Except as disclosed in the Time of Sale Disclosure Package and the Prospectus, the Company and its subsidiaries (A) are not in violation of any statute, rule, regulation, decision or order of any Governmental Authority or any court, domestic or foreign, relating to the use, disposal or release of contaminants, wastes, or hazardous or toxic substances or relating to the protection or restoration of the environment or human exposure to contaminants, wastes, or hazardous or toxic substances (collectively, “**Environmental Laws**”), (B) do not own or operate any real property contaminated with any substance that is subject to Environmental Laws and (C) are not liable for any off-site disposal, remediation or contamination pursuant to Environmental Laws, or are subject to any claim relating to Environmental Laws, which violation, contamination, liability or claim would individually or in the aggregate, have a Material Adverse Effect, and the Company is not aware of any pending investigation which could reasonably be expected to lead to such a claim.

(xxxv) The Company and its subsidiaries (A) are in compliance, in all material respects, with any and all applicable foreign, federal, state and local laws, rules, regulations, treaties, statutes and codes promulgated by any and all governmental authorities (including pursuant to the Occupational Health and Safety Act) relating to the protection of human health and safety in the workplace (“**Occupational Laws**”); (B) have received all material permits, licenses or other approvals required under applicable Occupational Laws to conduct their respective business as currently conducted, except as would not reasonably be expected to result in a Material Adverse Effect; and (C) are in compliance, in all material respects, with all terms and conditions of such permit, license or approval. No action, proceeding, revocation proceeding, writ, injunction or claim is pending or, to the knowledge of the Company, threatened against the Company or any of its subsidiaries relating to Occupational Laws.

(xxxvi) To the knowledge of the Company, no “prohibited transaction” as defined under Section 406 of ERISA or Section 4975 of the Code and not exempt under ERISA Section 408 and the regulations and published interpretations thereunder has occurred with respect to any Employee Benefit Plan. At no time has the Company or any ERISA Affiliate maintained, sponsored, participated in, contributed to or has or had any liability or obligation in respect of any Employee Benefit Plan subject to Part 3 of Subtitle B of Title I of ERISA, Title IV of ERISA, or Section 412 of the Code or any “multiemployer plan” as defined in Section 3(37) of ERISA or any multiple employer plan for which the Company or any ERISA Affiliate has incurred or could reasonably be expected to incur any liability under Section 4063 or 4064 of ERISA. No Employee Benefit Plan provides or promises, or at any time provided or promised, retiree health, retiree life insurance, or other retiree welfare benefits except as may be required by the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended, or similar state law. Each Employee Benefit Plan is and has been operated in material compliance with its terms and all applicable laws, including but not limited to ERISA and the Code and, to the knowledge of the Company, no event has occurred (including a “reportable event” as such term is defined in Section 4043 of ERISA) and no condition exists that would subject the Company or any ERISA Affiliate to any material tax, fine, lien, penalty or liability imposed by ERISA, the Code or other applicable law. Each Employee Benefit Plan intended to be qualified under Code Section 401(a) is so qualified and has a favorable determination or opinion letter from the IRS upon which it can rely, and any such determination or opinion letter remains in effect and has not been revoked; to the knowledge of the Company, nothing has occurred since the date of any such determination or opinion letter that is reasonably likely to adversely affect such qualification. No Employee Benefit Plan established or maintained by the Company, its subsidiaries or any of their ERISA Affiliates, if such Employee Benefit Plan were terminated, would have any “amount of unfunded benefit liabilities” (as defined under ERISA). The Company does not have any obligations under any collective bargaining agreement with any union and no organization efforts are underway with respect to Company employees. As used in this Agreement, “**Code**” means the Internal Revenue Code of 1986, as amended; “**Employee Benefit Plan**” means any “employee benefit plan” within the meaning of Section 3(3) of ERISA, including, without limitation, all stock purchase, stock option, stock-based severance, employment, change-in-control, medical, disability, fringe benefit, bonus, incentive, deferred compensation, employee loan and all other employee benefit plans, agreements, programs, policies or other arrangements, whether or not subject to ERISA, under which (1) any current or former employee, director or independent contractor of the Company has any present or future right to benefits and which are contributed to, sponsored by or maintained by the Company or (2) the Company has any present or future obligation or liability; “**ERISA**” means the Employee Retirement Income Security Act of 1974, as amended, and the regulations and published interpretations thereunder; “**ERISA Affiliate**” means any member of the company’s controlled group as defined in Section 414(b), (c), (m) or (o) of the Code.

(xxxvii) Except as disclosed in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, the Company and its subsidiaries have not granted rights to develop, manufacture, produce, assemble, distribute, license, market or sell its product candidates to any other person, organization or entity and are not bound by any agreement that affects the exclusive right of the Company and its subsidiaries to develop, manufacture, produce, assemble, distribute, license, market or sell their products.

(xxxviii) No labor problem or dispute with the employees of the Company or any of its subsidiaries exists or is threatened or, to the knowledge of the Company, imminent, and the Company is not aware of any existing or imminent labor disturbance by the employees of any of its principal suppliers, contractors or customers, that would reasonably be expected to have a Material Adverse Effect.

(xxxix) Any third-party statistical, demographic and market-related data included in the Registration Statement, the Time of Sale Disclosure Package or the Prospectus are based on or derived from sources that the Company believes to be reliable and accurate in all material respects. To the extent required, the Company has obtained the written consent to the use of such data from such sources.

(xl) There are no outstanding loans, advances (except normal advances for business expenses in the ordinary course of business) or guarantees or indebtedness, in each case made by or from the Company to or for the benefit of any of the officers or directors of the Company or any of its subsidiaries or to any of the Company's stockholders.

(xli) Except as disclosed in the Time of Sale Disclosure Package and the Prospectus, the Company (A) does not have any material lending or other relationship with any bank or lending affiliate of any Underwriter and (B) does not intend to use any of the proceeds from the sale of the Securities hereunder to repay any outstanding debt owed to any affiliate of any Underwriter.

(xlii) Each financial or operational projection or other "forward-looking statement" (as defined by Section 27A of the Act or Section 21E of the Exchange Act) contained in the Registration Statement, the Time of Sale Prospectus or the Prospectus (A) was so included by the Company in good faith and with reasonable basis after due consideration by the Company of the underlying assumptions, estimates and other applicable facts and circumstances and (B) is accompanied by meaningful cautionary statements identifying those factors that could cause actual results to differ materially from those in such forward looking statement. No such statement was made with the knowledge of an executive officer or director of the Company that is or was false or misleading.

(xliii) No subsidiary of the Company is prohibited or restricted, directly or indirectly, from paying dividends to the Company, or from making any other distribution with respect to such subsidiary's equity securities or from repaying to the Company or any other subsidiary of the Company any amounts that may from time to time become due under any loans or advances to such subsidiary from the Company or from transferring any property or assets to the Company or to any other subsidiary.

(b) Any certificate signed by any officer of the Company and delivered to you or to counsel for the Underwriters shall be deemed a representation and warranty by the Company to each Underwriter as to the matters covered thereby.

Section 3. Purchase, Sale and Delivery of Securities.

(a) On the basis of the representations, warranties and agreements herein contained, but subject to the terms and conditions herein set forth, the Company agrees to issue and sell an aggregate of 7,272,727 Firm Shares, and each Underwriter agrees, severally and not jointly, to purchase from the Company the number of Firm Shares set forth opposite the name of such Underwriter in Schedule I hereto. The purchase price for each Firm Share shall be \$2.6125 (the "**Basic Purchase Price**"). In making this Agreement, each Underwriter is contracting severally and not jointly; except as provided in paragraph (c) of this Section 3 and in Section 8 hereof, the agreement of each Underwriter is to purchase only the respective number of Firm Shares specified in Schedule I.

The Firm Shares will be delivered by the Company to you for the accounts of the several Underwriters against payment of the purchase price therefor by wire transfer of same day funds payable to the order of the Company, at the offices of Latham & Watkins LLP, 12670 High Bluff Drive, San Diego, California 92130, or such other location as may be mutually acceptable, at 10:00 a.m., Eastern time, on the second (or if the Securities are priced, as contemplated by Rule 15c6-1(c) under the Exchange Act, after 4:30 p.m. Eastern time, the third) full business day following the date hereof, or at such other time and date as you and the Company determine pursuant to Rule 15c6-1(a) under the Exchange Act, such time and date of delivery being herein referred to as the "**First Closing Date.**" If the Representative so elects, delivery of the Firm Shares may be made by credit using the Deposit/Withdrawal At Custodian (DWAC) program to the accounts at the Depository Trust Company designated by the Representative. Certificates representing the Firm Shares, in definitive form and in such denominations and registered in such names as you may request upon at least two business days' prior notice to the Company, or evidence of their issuance, will be made available for inspection at a reasonable time preceding the First Closing Date at the offices of Latham & Watkins LLP, 12670 High Bluff Drive, San Diego, California 92130, or such other location as may be mutually agreed.

(b) On the basis of the representations, warranties and agreements herein contained, but subject to the terms and conditions herein set forth, the Company hereby grants to the several Underwriters an option to purchase, severally and not jointly, up to an aggregate of 1,090,909 Option Shares at a price per share equal to the Basic Purchase Price, less an amount per share equal to any dividend or distribution declared by the Company and payable on the Firm Shares but not payable on Option Shares. The option granted hereunder may be exercised in whole or in part, at any time and from time to time, within 30 days after the effective date of this Agreement upon notice (confirmed in writing) by the Representative to the Company setting forth the aggregate number of Option Shares as to which the several Underwriters are exercising the option and the date and time, as determined by you, when the Option Shares are to be delivered, each such time and date being herein referred to as an “**Option Closing**” and an “**Option Closing Date**,” respectively (and the First Closing Date and each Option Closing Date may be individually referred to as a “**Closing Date**”); *provided, however*, that no Option Closing Date shall be earlier than the First Closing Date or earlier than the second business day after the date on which the option shall have been exercised (and in the event that an Option Closing Date is simultaneous with the First Closing Date, the term “**First Closing Date**” shall refer to the time and date of delivery of the Firm Shares and such Option Shares). If the option granted hereunder is exercised, each Underwriter agrees, severally but not jointly, to purchase from the Company the number of Option Shares that bears the same proportion to the total number of Option Shares to be purchased by the several Underwriters as the number of Firm Shares to be purchased by such Underwriter in Schedule I hereto bears to the total number of Firm Shares to be purchased by the several Underwriters, as adjusted by the Representative in such manner as the Representative deems advisable to avoid fractional shares. No Option Shares shall be sold and delivered unless the Firm Shares previously have been, or simultaneously are, sold and delivered.

The Option Shares will be delivered by the Company to you for the accounts of the several Underwriters against payment of the purchase price therefor by wire transfer of same day funds payable to the order of the Company at the offices of Latham & Watkins LLP, 12670 High Bluff Drive, San Diego, California 92130, or such other location as may be mutually acceptable at 10:00 a.m., Eastern time, on each Option Closing Date. If the Representative so elects, delivery of the Option Shares may be made by credit using the DWAC program to the accounts at the Depository Trust Company designated by the Representative. Certificates representing the Option Shares, in definitive form and in such denominations and registered in such names as you may request upon at least two business days’ prior notice to the Company, or evidence of their issuance, will be made available for inspection at a reasonable time preceding each Option Closing Date at the offices of Latham & Watkins LLP, 12670 High Bluff Drive, San Diego, California 92130, or such other location as may be mutually agreed.

(c) It is understood that you, individually and not as Representative of the several Underwriters, may (but shall not be obligated to) make payment to the Company on behalf of any Underwriter for the Securities to be purchased by such Underwriter. Any such payment by you shall not relieve any such Underwriter of any of its obligations hereunder. Nothing herein contained shall deem any of the Underwriters an unincorporated association or partner with the Company.

Section 4. Covenants.

(a) The Company further covenants and agrees with the several Underwriters as follows:

(i) The Company will notify you promptly of (A) the date and time when any post-effective amendment to the Original Registration Statement has been filed or has become effective, (B) the date and time when any amendment or supplement to any preliminary prospectus, the Time of Sale Prospectus, any free writing prospectus or the Prospectus has been filed and (C) the receipt of any comments of or any request for any amendment, supplement or additional information from, the Commission; if the Company has elected to rely on Rule 430B of the Rules and Regulations, the Company will prepare and file a Prospectus containing the information omitted therefrom pursuant to Rule 430B of the Rules and Regulations with the Commission within the time period required by, and otherwise in accordance with the provisions of, Rule 424(b) and Rule 430B of the Rules and Regulations; if the Company has elected to rely upon Rule 462(b) of the Rules and Regulations to increase the size of the offering registered under the Act and the Rule 462(b) Registration Statement has not yet been filed and become effective, the Company will prepare and file the Rule 462 Registration Statement with the Commission within the time period required by, and otherwise in accordance with the provisions of, Rule 462(b) and the Act; the Company will prepare and file with the Commission, promptly upon your request, any amendments or supplements to the Registration Statement or Prospectus that, based on the advice of counsel of the Company or the Underwriters, may be necessary or advisable in connection with the distribution of the Securities by the Underwriters; and the Company will furnish the Representative and counsel for the Underwriters, a reasonable period of time prior to the proposed time of filing, a copy of any proposed amendment or supplement to the Registration Statement or Prospectus and will not file any amendment or supplement to the Registration Statement or Prospectus to which you shall reasonably object by notice to the Company after having been furnished a copy a reasonable time prior to the filing. The Company shall file with the Commission within the applicable period specified in Rule 424(b) under the Act any prospectus required to be filed pursuant to such Rule.

(ii) The Company will advise you, promptly after it shall receive notice or obtain knowledge thereof, of the issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement or any post-effective amendment thereto or preventing or suspending the use of any Preliminary Prospectus, the Time of Sale Disclosure Package, the Prospectus or any Issuer Free Writing Prospectus, of the suspension of the qualification of the Securities for offering or sale in any jurisdiction, of any proceedings to remove, suspend or terminate from listing or quotation any securities of the Company from any securities exchange upon which they are listed for trading or included or designated for quotation, or of the initiation or threatening of any proceeding for any such purpose; and the Company will promptly use its best efforts to prevent the issuance of any stop order or to obtain its withdrawal at the earliest possible moment if such a stop order should be issued. Additionally, the Company agrees that it shall comply with the provisions of Rule 424(b) and Rule 430B, as applicable, under the Act and will use its reasonable efforts to confirm that any filings made by the Company under Rule 424(b), Rule 433 or Rule 462 were received in a timely manner by the Commission.

(iii) (A) Within the time during which a prospectus (whether physically or through compliance with Rule 172 under the Act or any similar rule) relating to the Securities is required to be delivered under the Act by any Underwriter or dealer (the "**Prospectus Delivery Period**"), the Company will use its best effort to comply with all requirements imposed upon it by the Act, as now and hereafter amended, and by the Rules and Regulations, as from time to time in force, so far as necessary to permit the continuance of sales of or dealings in the Securities as contemplated by the provisions hereof, the Time of Sale Disclosure Package and the Prospectus. If during such period any event occurs or condition exists as a result of which the Prospectus (or if the Prospectus is not yet available to prospective purchasers, the Time of Sale Prospectus) would include an untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances then existing, not misleading, or if during such period it is necessary to amend the Registration Statement or supplement the Prospectus (or if the Prospectus is not yet available to prospective investors, the Time of Sale Prospectus) to comply with the Act, the Company will promptly notify you, will promptly amend the Registration Statement or supplement the Prospectus (or, if the Prospectus is not yet available to prospective purchasers, the Time of Sale Prospectus) (at the expense of the Company) and will furnish to the Underwriters and to any dealer upon request, either amendments to the Registration Statement or supplements to the Prospectus (or if the Prospectus is not yet available to prospective investors, the Time of Sale Prospectus) so as to correct such statement or omission or effect such compliance.

(B) If at any time following issuance of any Issuer Free Writing Prospectus and through the Prospectus Delivery Period, there occurred or occurs an event or development as a result of which such Issuer Free Writing Prospectus conflicted or would conflict with the information contained in the Registration Statement, the Preliminary Prospectus or the Prospectus relating to the Securities or included or would include an untrue statement of a material fact or omitted or would omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances prevailing at such time, not misleading, the Company shall promptly notify the Representative and shall promptly amend or supplement, at its own expense, such Issuer Free Writing Prospectus to eliminate or correct such conflict, untrue statement or omission; *provided, however*, that prior to amending or supplementing any such Issuer Free Writing Prospectus, the Company shall furnish to the Representative for review, a reasonable amount of time prior to the proposed time of filing or use thereof, a copy of such proposed amended or supplemented Issuer Free Writing Prospectus, and the Company shall not file, use or refer to any such amended or supplemented Issuer Free Writing Prospectus without the Representative's prior written consent.

(iv) The Company shall cooperate with the Representative and counsel to the Underwriters and take or cause to be taken all necessary action to qualify the Securities for sale under the securities laws of such jurisdictions as you reasonably designate and to comply with such laws and continue such qualifications in effect so long as required for the distribution of the Securities, except that the Company shall not be required in connection therewith to qualify as a foreign corporation or to execute a general consent to service of process in any state where it is not presently qualified.

(v) The Company will furnish, at its own expense, to the Underwriters and counsel for the Underwriters in New York City, prior to 10:00 a.m. (Eastern time) on the business day next succeeding the date of this Agreement and during the Prospectus Delivery Period, copies of the Registration Statement (one of which will be signed and will include all consents and exhibits filed therewith), and to the Underwriters and any dealer each Preliminary Prospectus, the Time of Sale Disclosure Package, the Prospectus, any Issuer Free Writing Prospectus and all amendments and supplements to such documents, in each case as soon as available and in such quantities as you may from time to time reasonably request. The Company shall furnish to the Representative for review, a reasonable amount of time prior to the proposed time of filing or use thereof, a copy of each proposed free writing prospectus or any amendment or supplement thereto prepared by or on behalf of, used by, or referred to by the Company, and the Company shall not file, use or refer to any proposed free writing prospectus or any amendment or supplement thereto without the Representative's prior written consent. The Company shall furnish to each Underwriter, without charge, as many copies of any free writing prospectus prepared by or on behalf of, used by or referred to by the Company as such Underwriter may reasonably request.

(vi) During a period of five years commencing with the date hereof, the Company will furnish to the Representative, as the Representative may from time to time reasonably request in writing, copies of all periodic and special reports furnished to the stockholders of the Company generally, and all public information, documents and reports filed with the Commission, FINRA or any securities exchange (other than any such information, documents and reports that are filed with the Commission electronically via EDGAR or any successor system thereto).

(vii) The Company will make generally available to its security holders as soon as practicable, but in no event later than 15 months after the end of the Company's current fiscal quarter, an earnings statement (which need not be audited) covering a 12-month period beginning with the first fiscal quarter of the Company commencing after the date of this Agreement that shall satisfy the provisions of Section 11(a) of the Act and Rule 158 of the Rules and Regulations.

(viii) The Company, whether or not the transactions contemplated hereunder are consummated or this Agreement is prevented from becoming effective under the provisions of Section 9(a) hereof or is terminated, will pay or cause to be paid (A) all expenses (including transfer taxes allocated to the respective transferees) incurred in connection with the delivery to the Underwriters of the Securities, (B) all expenses and fees (including, without limitation, fees and expenses of the Company's accountants and counsel but, except as otherwise provided below, not including fees of the Underwriters' counsel) in connection with the preparation, printing, filing, delivery and shipping of the Registration Statement (including all amendments, schedules and exhibits thereto), the Securities, each Preliminary Prospectus, the Time of Sale Disclosure Package, the Prospectus, any Issuer Free Writing Prospectus and any amendment thereof or supplement thereto, and the printing, delivery and shipping of this Agreement and other underwriting documents, including Blue Sky Memoranda (covering the states and other applicable jurisdictions); (C) all filing fees and reasonable fees and disbursements of the Underwriters' counsel incurred in connection with the qualification of the Securities for offering and sale by the Underwriters or by dealers under the securities or blue sky laws of the states and other jurisdictions which you shall designate, which shall not exceed \$10,000 in the aggregate, (D) the fees and expenses of any transfer agent or registrar, (E) the costs and expenses incurred by the Underwriters in connection with determining their compliance with the rules and regulations of FINRA related to the Underwriters' participation in the offering and distribution of the Securities, including any related filing fees and the legal fees of, and disbursements by, counsel to the Underwriters, which costs and expenses shall not exceed \$10,000 in the aggregate, (F) listing fees, if any, (G) the cost and expenses of the Company relating to investor presentations or any Road Show undertaken in connection with marketing of the Securities, and (H) all other costs and expenses of the Company incident to the performance of its obligations hereunder that are not otherwise specifically provided for herein. If the sale of the Firm Shares provided for herein is not consummated by reason of action by the Company pursuant to Section 9(a)(i) hereof which prevents this Agreement from becoming effective, if this Agreement is terminated by the Representative pursuant to Section 9 hereof prior to the First Closing or if the sale of the Firm Shares provided for herein is not consummated by reason of any failure, refusal or inability on the part of the Company to perform any agreement on its or their part to be performed, or because any other condition of the Underwriters' obligations hereunder required to be fulfilled by the Company prior to the First Closing is not fulfilled, the Company will reimburse the several Underwriters for all out-of-pocket disbursements (including but not limited to fees and disbursements of counsel, printing expenses, travel expenses, postage, facsimile and telephone charges) incurred by the Underwriters in connection with their investigation, preparing to market and marketing the Securities or in contemplation of performing their obligations hereunder. Except as provided in this Section 4(a)(viii) and in Section 6 hereof, the Underwriters will pay all of their own costs and expenses, including, but not limited to, the fees and disbursements of Underwriters' counsel, stock transfer taxes, if any, on resale of any of the Securities by them, and any advertising expenses of the Underwriters in connection with any offers they may make.

(ix) The Company will apply the net proceeds from the sale of the Securities to be sold by it hereunder for the purposes set forth under the caption "Use of Proceeds" in the Time of Sale Disclosure Package and the Prospectus.

(x) The Company will not, without the prior written consent of the Representative, from the date of execution of this Agreement and continuing to and including the date 60 days after the date of the Prospectus (such period, as extended as described below, being referred to herein as the **“Lock-Up Period”**), (A) offer, lend, announce the intention to sell, 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 Common Stock or Related Securities (as defined below), effect any short sale, or establish or increase any “put equivalent position” (as defined in Rule 16a-1(h) under the Exchange Act) or liquidate or decrease any “call equivalent position” (as defined in Rule 16a-1(b) under the Exchange Act) of any Common Stock or Related Securities; (B) pledge, hypothecate or grant any security interest in any Common Stock or Related Securities; (C) enter into any swap, hedge or other agreement or any agreement that transfers, in whole or in part, the economic risk of ownership of Common Stock or Related Securities, regardless of whether any such transaction is to be settled in securities, in cash or otherwise; (D) announce the offering of any Common Stock or Related Securities; (E) file any registration statement under the Act in respect of Common Stock or Related Securities (other than as contemplated by this Agreement with respect to the Securities); or (F) publicly announce any intention to do any of the foregoing; *provided* that the Company may (1) effect the transactions contemplated hereby; or (2) issue Common Stock pursuant to the valid exercise, vesting or conversion of any options, restricted stock units, warrants, rights or convertible securities outstanding on the date hereof or pursuant to any equity compensation plans or arrangements described in the Time of Sale Disclosure Package and the Prospectus. For the avoidance of doubt, this Section 4(a)(x) shall not apply to the filing by the Company of any registration statement under the Act (including any amendments or supplements to existing registration statements or the prospectuses included therein) on Form S-8 in respect of any equity compensation plans or arrangements maintained or assumed by the Company and nothing in this Section 4(a)(x) shall otherwise be deemed to prohibit or limit the Company’s ability to effect any such registrations or filings. In addition, notwithstanding anything to the contrary contained in this Section 4(a)(x), the Company shall be permitted to keep in effect the Controlled Equity OfferingSM Sales Agreement, dated June 21, 2016, by and between the Company and Cantor Fitzgerald & Co. (the “Sales Agreement”) and the prospectus supplement to the Base Prospectus related thereto, *provided* that pursuant to the terms of this Section 4(a)(x), no sales of Common Stock under the Sales Agreement may be made during the Lock-Up Period. For purposes of the foregoing, **“Related Securities”** shall mean any options or warrants or other rights to acquire Common Stock or any securities exchangeable or exercisable for or convertible into Common Stock, or to acquire other securities or rights ultimately exchangeable or exercisable for or convertible into Common Stock.

(xi) The Company has caused to be delivered to you prior to the date of this Agreement a letter, in the form of Exhibit A hereto (the **“Lock-Up Agreement”**), from each of the Company’s directors and officers that are listed on Exhibit B hereto. The Company will enforce the terms of each Lock-Up Agreement, which such obligation will be satisfied solely by issuing stop transfer instructions to the transfer agent and registrar for the Common Stock with respect to any transaction or contemplated transaction that would violate or otherwise constitute a breach of or default under the applicable Lock-Up Agreement. If any additional persons shall become directors or officers of the Company prior to the end of the Lock-up Period, the Company shall cause each such person, prior to or contemporaneously with the effectiveness of their appointment or election as a director or officer of the Company, to execute and deliver to the Representative a Lock-up Agreement.

(xii) Neither the Company nor any of its subsidiaries or affiliates has taken and will not take, directly or indirectly, any action designed to or which might reasonably be expected to cause or result in, or which has constituted, the stabilization or manipulation of the price of any security of the Company, whether to facilitate the sale or resale of the Securities or otherwise, or any action which would directly or indirectly violate Regulation M, nor has the Company or any of its subsidiaries effected any sales of Common Stock which are required to be disclosed in response to Item 701 of Regulation S-K under the Act which have not been so disclosed in the Registration Statement. The Company will, and shall cause each of its affiliates to, comply with all applicable provisions of Regulation M.

(xiii) The Company will not incur any liability for any finder's or broker's fee or agent's commission in connection with the execution and delivery of this Agreement or the consummation of the transactions contemplated hereby.

(xiv) The Company will comply with the Act and the Exchange Act so as to permit the completion of the distribution of the Securities as contemplated by this Agreement, the Registration Statement, the Time of Sale Prospectus and the Prospectus. Without limiting the generality of the foregoing, during the Prospectus Delivery Period, the Company will file on a timely basis with the Commission and Nasdaq such reports and documents as required by the Rules and Regulations and the Exchange Act.

(xv) During the one-year period from the date of this Agreement, the Company will maintain such controls and other procedures, including without limitation those required by Sections 302 and 906 of the Sarbanes-Oxley Act and the applicable regulations thereunder, that are designed to ensure that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Commission's rules and forms, including, without limitation, controls and procedures designed to ensure that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the Company's management, including its principal executive officer and its principal financial officer, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure, to ensure that material information relating to Company is made known to them by others within those entities.

(xvi) During the one-year period from the date of this Agreement, the Company will comply in all material respects with all applicable provisions of the Sarbanes-Oxley Act.

(xvii) The Company represents and agrees that, unless it obtains the prior written consent of the Representative, and each Underwriter severally represents and agrees that, unless it obtains the prior written consent of the Company and the Representative, it has not made and will not make any offer relating to the Securities that would constitute an "issuer free writing prospectus," as defined in Rule 433 under the Act, or that would otherwise constitute a free writing prospectus required to be filed with the Commission; *provided* that the prior written consent of the parties hereto shall be deemed to have been given in respect of the Issuer General Use Free Writing Prospectuses included in Schedule II. Any such free writing prospectus consented to by the Company and the Representative is hereinafter referred to as a "**Permitted Free Writing Prospectus.**" The Company represents that it has treated or agrees that it will treat each Permitted Free Writing Prospectus as an "issuer free writing prospectus," as defined in Rule 433, and has complied and will comply with the requirements of Rules 164 and 433 applicable to any Permitted Free Writing Prospectus, including timely Commission filing where required, legending and record keeping. The Company represents that it has satisfied and agrees that it will satisfy the conditions in Rule 433 to avoid a requirement to file with the Commission any electronic road show.

(xviii) The Company shall not take any action that would result in an Underwriter or the Company being required to file with the Commission pursuant to Rule 433(d) under the Act a free writing prospectus prepared by or on behalf of such Underwriter that such Underwriter otherwise would not have been required to file thereunder.

(xix) If requested by the Representative, the Company shall cause to be prepared and delivered, at its expense, within one business day from the effective date of this Agreement, to the Representative an “electronic Prospectus” to be used in connection with the offering and sale of the Securities. As used herein, the term “**electronic Prospectus**” means a form of Time of Sale Prospectus, and any amendment or supplement thereto, that meets each of the following conditions: (A) it shall be encoded in an electronic format, satisfactory to the Representative, that may be transmitted electronically by the Representative and the other Underwriters to offerees and purchasers of the Securities; (B) it shall disclose the same information as the paper Time of Sale Prospectus, except to the extent that graphic and image material cannot be disseminated electronically, in which case such graphic and image material shall be replaced in the electronic Prospectus with a fair and accurate narrative description or tabular representation of such material, as appropriate; and (C) it shall be in or convertible into a paper format or an electronic format, satisfactory to the Representative, that will allow investors to store and have continuously ready access to the Time of Sale Prospectus at any future time, without charge to investors (other than any fee charged for subscription to the Internet as a whole and for on-line time). The Company hereby confirms that it has included or will include in the Prospectus filed pursuant to EDGAR or otherwise with the Commission and in the Registration Statement at the time it was declared effective an undertaking that, upon receipt of a request by an investor or his or her representative, the Company shall transmit or cause to be transmitted promptly, without charge, a paper copy of the Time of Sale Prospectus.

Section 5. Conditions of Underwriters’ Obligations.

The respective obligations of the several Underwriters hereunder are subject to the accuracy, as of the date hereof and at each of the First Closing Date and each Option Closing Date (as if made at such Closing Date), of and compliance with all representations, warranties and agreements of the Company contained herein, to the performance by the Company and to the following additional conditions:

(a) The Registration Statement shall have become effective and all filings required by Rule 424, Rule 430B and Rule 433 of the Rules and Regulations shall have been timely made (without reliance on Rule 424(b)(8) or Rule 164(b)). The Company shall have filed the Prospectus with the Commission (including the information previously omitted from the Registration Statement pursuant to Rule 430B under the Act) in the manner and within the time period required by Rule 424(b) under the Act. No stop order suspending the effectiveness of the Registration Statement or any part thereof or any amendment thereof, nor suspending or preventing the use of the Time of Sale Disclosure Package, the Prospectus or any Issuer Free Writing Prospectus shall have been issued; no proceedings for the issuance of such an order shall have been initiated or threatened; and any request of the Commission for additional information (to be included in the Registration Statement, the Time of Sale Disclosure Package, the Prospectus, any Issuer Free Writing Prospectus or otherwise) shall have been complied with to your satisfaction.

(b) The Representative shall not have advised the Company that (i) the Registration Statement or any amendment thereof or supplement thereto contains an untrue statement of a material fact which, based on the advice of counsel, is material or omits to state a material fact which, based on the advice of counsel, is required to be stated therein or necessary to make the statements therein not misleading, or (ii) the Time of Sale Disclosure Package or the Prospectus, or any amendment thereof or supplement thereto, or any Issuer Free Writing Prospectus contains an untrue statement of fact which, based on the advice of counsel, is material, or omits to state a fact which, based on the advice of counsel, is material and is required to be stated therein, or necessary to make the statements therein, in light of the circumstances under which they are made, not misleading.

(c) Except as otherwise disclosed in the Registration Statement, Time of Sale Disclosure Package and the Prospectus, subsequent to the respective dates as of which information is given in the Registration Statement, Time of Sale Disclosure Package and the Prospectus, the Company and its subsidiaries, considered as one entity, shall have not incurred any material liabilities or obligations, direct or contingent, entered into any material transactions, or declared or paid any dividends or made any distribution of any kind with respect to their capital stock, or entered into any transactions not in the ordinary course of business. There shall not have been any change in the capital stock (other than a change in the number of outstanding shares of Common Stock due to the issuance of shares upon the exercise, vesting or conversion of options, restricted stock units, warrants, rights or convertible securities outstanding as of the date of this Agreement), or any material change in the short-term or long-term debt of the Company, or any issuance of options, restricted stock units, warrants, convertible securities or other rights to purchase the capital stock of the Company except pursuant to equity compensation plans or arrangements described in the Time of Sale Disclosure Package and the Prospectus, or any Material Adverse Change or any development that would result in a Material Adverse Change (whether or not arising in the ordinary course of business), that, in your judgment, makes it impractical or inadvisable to offer or deliver the Securities on the terms and in the manner contemplated in the Time of Sale Disclosure Package and in the Prospectus.

(d) For the period from and after the date of this Agreement and through and including the First Closing Date and each applicable Option Closing Date: (i) if applicable, no downgrading shall have occurred in the rating accorded the Company's debt securities or preferred stock by any "nationally recognized statistical organization," as that term is defined by the Commission for purposes of Rule 436(g)(2) under the Act, and (ii) no such organization shall have publicly announced that it has under surveillance or review, with possible negative implications, its rating of any of the Company's debt securities or preferred stock.

(e) On each Closing Date, there shall have been furnished to you, as Representative of the several Underwriters, the opinion and negative assurance letter of Cooley LLP, corporate counsel for the Company, each dated such Closing Date and addressed to you, in form and substance satisfactory to you.

(f) On each Closing Date, there shall have been furnished to you, as Representative of the several Underwriters, the opinion of Cooley LLP, intellectual property counsel for the Company, dated such Closing Date and addressed to you, in form and substance satisfactory to you.

(g) On each Closing Date, there shall have been furnished to you, as Representative of the several Underwriters, the opinion of Latham & Watkins LLP, counsel for the several Underwriters, dated such Closing Date and addressed to you, and such counsel shall have received such papers and information as they request to enable them to pass upon the matters addressed therein.

(h) On the date hereof and on each Closing Date you, as Representative of the several Underwriters, shall have received a letter from OUM & Co. LLP, dated such date and addressed to you, in form and substance satisfactory to you, confirming that it is an independent registered public accounting firm as required by the Act, the Exchange Act, the Rules and Regulations and the PCAOB, are in compliance with the applicable requirements relating to the qualifications of accountants under Rule 2-01 of Regulation S-X under the Act, and containing statements and information of the type ordinarily included in accountant's "comfort letters" to underwriters, delivered according to Statement of Auditing Standards No. 72 (or any successor bulletin), with respect to the audited and unaudited financial statements and certain financial information contained in the Registration Statement, the Time of Sale Prospectus, and each free writing prospectus, if any, and the effect of the letter so to be delivered on such Closing Date shall be to confirm the conclusions and findings set forth in such prior letter except that the specified date referred to shall be a date not more than three business days prior to the relevant Closing Date.

(i) On each Closing Date, there shall have been furnished to you, as Representative of the Underwriters, a certificate, dated such Closing Date and addressed to you, signed by the chief executive officer and by the chief financial officer of the Company, to the effect that:

(i) the representations and warranties of the Company in this Agreement are true and correct, in all material respects, as if made at and as of such Closing Date, and the Company has complied with all the agreements and satisfied all the conditions on its part to be performed or satisfied under this Agreement at or prior to such Closing Date;

(ii) no stop order or other order suspending the effectiveness of the Registration Statement or any part thereof or any amendment thereof or the qualification of the Securities for offering or sale, nor suspending or preventing the use of the Time of Sale Disclosure Package, the Prospectus or any Issuer Free Writing Prospectus, has been issued, and no proceeding for that purpose has been instituted or, to the best of their knowledge, is contemplated by the Commission or any state or regulatory body; and

(iii) the signers of said certificate have carefully examined the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, and any amendments thereof or supplements thereto, and (A) each part of the Registration Statement and the Prospectus, and any amendments thereof or supplements thereto contain, and contained when such part of the Registration Statement, or any amendment thereof, became effective, all statements and information required to be included therein, the Registration Statement, or any amendment thereof, does not contain and did not contain when such part of the Registration Statement, or any amendment thereof, became effective, any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein not misleading, and the Prospectus, as amended or supplemented, does not include and did not include as of its date or the time of first use within the meaning of the Rules and Regulations, any untrue statement of material fact or omit to state and did not omit to state as of its date or the time of first use within the meaning of the rules and Regulations a material fact necessary to make the statements therein, in light of the circumstances under which they were made, not misleading, (B) neither (1) the Time of Sale Disclosure Package nor (2) any individual Issuer Limited Use Free Writing Prospectus, when considered together with the Time of Sale Disclosure Package, include, nor included as of the Applicable Time any untrue statement of a material fact or omits, or omitted as of the Applicable Time, to state any material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading, (C) since the Applicable Time there has occurred no event required to be set forth in an amended or supplemented prospectus which has not been so set forth, (D) subsequent to the respective dates as of which information is given in the Registration Statement, Time of Sale Disclosure Package and the Prospectus, the Company and its subsidiaries, considered as one entity, shall have not incurred any material liabilities or obligations, direct or contingent, entered into any material transactions, or declared or paid any dividends or made any distribution of any kind with respect to their capital stock, or entered into any transactions not in the ordinary course of business, any change in the capital stock (other than a change in the number of outstanding shares of Common Stock due to the issuance of shares upon the exercise, vesting or conversion of options, restricted stock units, warrants, rights or convertible securities outstanding as of the date of this Agreement), or any material change in the short-term or long-term debt of the Company, or any issuance of options, restricted stock units, warrants, convertible securities or other rights to purchase the capital stock of the Company except pursuant to equity compensation plans or arrangements described in the Time of Sale Disclosure Package and the Prospectus, or any other Material Adverse Change or any development which could reasonably be expected to result in any Material Adverse Change (whether or not arising in the ordinary course of business), and (E) there is no pending, or, to the knowledge of the Company, threatened or contemplated, action, suit, investigation or proceeding to which the Company or any of its subsidiaries is a party before or by any court, Governmental Agency or any arbitrator, which could reasonably be expected to result in any Material Adverse Change.

(j) On or prior to the date hereof, the Underwriters shall have received all of the Lock-Up Agreements referenced in Section 4, and each such agreement shall be in full force and effect on each Closing Date.

(k) The Company shall have furnished to you and counsel for the Underwriters such additional documents, certificates and evidence as you or they may have reasonably requested.

(l) FINRA shall have raised no objection to the fairness and reasonableness of the underwriting terms and arrangements.

(m) The Company shall have filed with Nasdaq a notification of the listing of the Securities on Nasdaq and Nasdaq shall have raised no objection to such listing.

(n) At each Closing Date, the Representative shall have received a certificate executed by the chief financial officer of the Company, dated such date, in form and substance satisfactory to the Representative.

All such opinions, certificates, letters and other documents mentioned above and elsewhere in this Agreement will be in compliance with the provisions hereof only if they are satisfactory in form and substance to you and counsel for the Underwriters. The Company will furnish you with such conformed copies of such opinions, certificates, letters and other documents as you shall reasonably request.

Section 6. Indemnification and Contribution.

(a) The Company agrees to indemnify and hold harmless each Underwriter, its affiliates, and its and their respective directors and officers and employees and each person, if any, who controls such Underwriter within the meaning of Section 15 of the Act or Section 20 of the Exchange Act, from and against any losses, claims, damages or liabilities, joint or several, to which such Underwriter or such affiliate, director, officer or control person may become subject, under the Act, the Exchange Act or otherwise (including in settlement of any litigation, or any investigation or proceeding by any governmental agency or body, commenced or threatened, if such settlement is effected with the written consent of the Company), insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon (i) an untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, or any amendment thereto, and any other information deemed to be a part of the Registration Statement at the time of effectiveness and at any subsequent time pursuant to the Rules and Regulations, if applicable, any Preliminary Prospectus, the Time of Sale Disclosure Package, the Prospectus, or any amendment or supplement thereto, any Issuer Free Writing Prospectus or in any materials or information provided to investors by, or with the written approval of, the Company in connection with the marketing of the offering of the Common Stock ("**Marketing Materials**"), including any Road Show or investor presentations made to investors by the Company (whether in person or electronically), (ii) the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein, in light of (other than in the case of the Registration Statement) the circumstances under which they are 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 Securities or the offering contemplated hereby, and which is included as part of or referred to in any losses, claims, damages or liabilities arising out of or based upon any matter covered by clause (i) or (ii) above, and will reimburse each Underwriter and each such affiliate, director and officer for any legal or other expenses reasonably incurred by it (including the fees and disbursements of counsel) in connection with preparing, investigating, defending or settling any such loss, claim, damage, liability or action as such expenses are incurred; *provided, however*, that the Company will not be liable in any such case to the extent that any such loss, claim, damage, liability or action arises out of or is based upon an untrue statement or alleged untrue statement or omission or alleged omission made in the Registration Statement, any Preliminary Prospectus, the Time of Sale Disclosure Package, the Prospectus, or any such amendment or supplement, any Issuer Free Writing Prospectus or in any Marketing Materials, in reliance upon and in conformity with written information furnished to the Company by you, or by any Underwriter through you, specifically for use therein; it being understood and agreed that the only information furnished by an Underwriter consists of the information described as such in Section 6(f).

(b) Each Underwriter will, severally and not jointly, indemnify and hold harmless the Company, its affiliates, directors, officers who signed the Registration Statement and each person, if any, who controls the Company within the meaning of Section 15 of the Act and Section 20 of the Exchange Act, from and against any losses, claims, damages or liabilities to which the Company may become subject, under the Act or otherwise (including in settlement of any litigation, or any investigation or proceeding by any governmental agency or body, commenced or threatened, if such settlement is effected with the written consent of such Underwriter), insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon an untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, any Preliminary Prospectus, the Time of Sale Disclosure Package, the Prospectus, or any amendment or supplement thereto, or any Issuer Free Writing Prospectus or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein, in light of (other than in the case of the Registration Statement) the circumstances under which they are 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, any Preliminary Prospectus, the Time of Sale Disclosure Package, the Prospectus, or any such amendment or supplement, or any Issuer Free Writing Prospectus in reliance upon and in conformity with written information furnished to the Company by you, or by such Underwriter through you, specifically for use therein (it being understood and agreed that the only information furnished by an Underwriter consists of the information described as such in Section 6(f)), and will reimburse the Company for any legal or other expenses reasonably incurred by the Company in connection with investigating or defending against any such loss, claim, damage, liability or action as such expenses are incurred.

(c) Promptly after receipt by an indemnified party under subsection (a), (b) or (c) above of notice of the commencement of any action, such indemnified party shall, if a claim in respect thereof is to be made against the indemnifying party under such subsection, notify the indemnifying party in writing of the commencement thereof; but the omission so to notify the indemnifying party shall not relieve the indemnifying party from any liability that it may have to any indemnified party except to the extent such indemnifying party has been 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 otherwise than on account of this indemnity agreement. In case any such action shall be brought against any indemnified party, and it shall notify the indemnifying party of the commencement thereof, the indemnifying party shall be entitled to participate in, and, to the extent that it shall wish, jointly with any other indemnifying party similarly notified, to assume the defense thereof, with counsel satisfactory to such indemnified party. After notice from the indemnifying party to such indemnified party of the indemnifying party's election so to assume the defense of such action and approval by the indemnified party of counsel, the indemnifying party shall not be liable to such indemnified party under such subsection for any legal or other expenses subsequently incurred by such indemnified party in connection with the defense thereof other than reasonable costs of investigation; *provided, however*, that if, in the sole judgment of the Representative, it is advisable for the Underwriters to be represented as a group by separate counsel, the Representative shall have the right to employ a single counsel (in addition to local counsel) to represent the Representative and all Underwriters who may be subject to liability arising from any claim in respect of which indemnity may be sought by the Underwriters under subsection (a) or (b) of this Section 6, in which event the reasonable fees and expenses of such separate counsel shall be borne by the indemnifying party or parties and reimbursed to the Underwriters as incurred. An indemnifying party shall not be obligated under any settlement agreement relating to any action under this Section 6 to which it has not agreed in writing, 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 or liability by reason of such settlement or judgment. In addition, no indemnifying party shall, without the prior written consent of the indemnified party (which consent shall not be unreasonably withheld or delayed), effect any settlement of any pending or threatened 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 includes an unconditional release of such indemnified party for all liability on claims that are the subject matter of such proceeding and does not include a statement as to, or an admission of, fault, culpability or a failure to act by or on behalf of an indemnified party.

(d) If the indemnification provided for in this Section 6 is unavailable or insufficient to hold harmless an indemnified party in respect of any losses, claims, damages or liabilities referred to under subsection (a) or (b) above, 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 or liabilities referred to in subsection (a) or (b) above, (i) in such proportion as is appropriate to reflect the relative benefits received by the Company on the one hand and the Underwriters on the other from the offering of the Securities 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 in connection with the statements or omissions that resulted in such losses, claims, damages or liabilities, as well as any other relevant equitable considerations. The relative benefits received by the Company on the one hand and the Underwriters on the other, in connection with the offering of the Securities pursuant to this Agreement, shall be deemed to be in the same respective proportions as the total proceeds from the offering of the Securities 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 in the table on the cover page of the Prospectus, bear to the aggregate public offering price of the Securities set forth on such cover. The relative fault of the Company on the one hand and the Underwriters on the other shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information supplied by the Company or the Underwriters and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission. The Company and the Underwriters agree that it would not be just and equitable if contributions pursuant to this subsection (d) were to be 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 subsection (d). The amount paid by an indemnified party as a result of the losses, claims, damages or liabilities referred to in the first sentence of this subsection (d) shall be deemed to include any legal or other expenses reasonably incurred by such indemnified party in connection with preparing, investigating or defending against any action or claim which is the subject of this subsection (d). Notwithstanding the provisions of this subsection (d), in no event shall an Underwriter be required to contribute any amount in excess of the total underwriting discounts and commissions received by such Underwriter with respect to the offering of the Securities pursuant to this Agreement. No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. The Underwriters' obligations in this subsection (d) to contribute are several in proportion to their respective underwriting commitments set forth in Schedule I and not joint.

(e) The obligations of the Company under this Section 6 shall be in addition to any liability which the Company may otherwise have and shall extend, upon the same terms and conditions, to each affiliate, director, officer and each person, if any, who controls any Underwriter within the meaning of the Act and the Exchange Act; and the obligations of the Underwriters under this Section 6 shall be in addition to any liability that the respective Underwriters may otherwise have and shall extend, upon the same terms and conditions, to each director of the Company (including any person who, with his consent, is named in the Registration Statement as about to become a director of the Company), to each officer of the Company who has signed the Registration Statement and to each person, if any, who controls the Company within the meaning of the Act and the Exchange Act.

(f) The Underwriters severally confirm and the Company acknowledges that the concession amounts set forth in the first and second sentences of the first paragraph under the caption “Underwriting—Commissions and Expenses”, the statements set forth in the first sentence of the first paragraph and the first sentence of the second paragraph under the caption “Underwriting—Market Making, Stabilization and Other Transactions” and the statements set forth in the first sentence under the caption “Underwriting—Passive Market Making” in the Time of Sale Disclosure Package and in the Prospectus, constitute the only information furnished in writing to the Company by or on behalf of the Underwriters specifically for inclusion in the Registration Statement, any preliminary prospectus, the Time of Sale Disclosure Package, the Prospectus or any Issuer Free Writing Prospectus.

Section 7. Representations and Agreements to Survive Delivery.

All representations, warranties and agreements of the Company or its officers set forth herein or in certificates delivered pursuant hereto, and the agreements of the several Underwriters and the Company contained in Section 6 hereof, shall remain operative and in full force and effect regardless of any investigation made by or on behalf of any Underwriter or any control person thereof, or the Company or any of its officers, directors or control persons, and shall survive delivery of, and payment for, the Securities to and by the Underwriters hereunder and any termination of this Agreement.

Section 8. Substitution of Underwriters.

(a) If, on the First Closing Date or any Option Closing Date, any Underwriter or Underwriters shall fail or refuse to purchase the amount of Securities agreed by such Underwriter or Underwriters to be purchased hereunder on such date, upon tender of such Securities in accordance with the terms hereof, and the amount of Securities not purchased does not aggregate more than 10% of the total amount of Securities to be purchased on such date, the Representative may make arrangements satisfactory to the Company for the purchase of such Securities by other persons, including any of the Underwriters, but if no such arrangements are made by such date, the remaining Underwriters shall be obligated, severally and not jointly, to purchase (in proportion to their respective commitments set forth in Schedule I hereto or as may otherwise be determined by you) the Firm Shares that the withdrawing or defaulting Underwriters agreed but failed to purchase on such date.

(b) If, on the First Closing Date or any Option Closing Date, any Underwriter or Underwriters shall fail or refuse to purchase the amount of Securities agreed by such Underwriter or Underwriters to be purchased hereunder on such date, upon tender of such Securities in accordance with the terms hereof, and the amount of Securities not purchased exceeds more than 10% of the aggregate number of Securities to be purchased on such date, and arrangements satisfactory to you for the purchase of such Securities by other persons are not made within 36 hours after such default, this Agreement shall terminate. In the event of any such termination the Company shall not be under any liability to any Underwriter (except to the extent provided in Section 6 hereof) nor shall any Underwriter (other than an Underwriter who shall have failed, otherwise than for some reason permitted under this Agreement, to purchase the amount of Securities agreed by such Underwriter to be purchased hereunder) be under any liability to the Company (except to the extent provided in Section 6 hereof).

If Securities to which a default relates are to be purchased by the non-defaulting Underwriters or by any other party or parties, the Representative shall have the right to postpone the First Closing Date or the applicable Option Closing Date, as the case may be, for not more than seven business days in order that the necessary changes in the Registration Statement, the Time of Sale Disclosure Package, the Prospectus or in any other documents, as well as any other arrangements, may be effected. As used herein, the term “**Underwriter**” shall be deemed to include any person substituted for a defaulting Underwriter under this Section 8. Any action taken under this Section 8 shall not relieve any defaulting Underwriter from liability in respect of any default of such Underwriter under this Agreement.

Section 9. Termination.

(a) You, as Representative of the several Underwriters, shall have the right to terminate this Agreement by giving notice as hereinafter specified at any time at or prior to the First Closing Date, and the option referred to in Section 3(b), if exercised, may be cancelled at any time prior to the relevant Option Closing Date, if (i) the Company shall have failed, refused or been unable, at or prior to such Closing Date, to perform any agreement on its part to be performed hereunder; (ii) any other condition of the Underwriters’ obligations hereunder is not fulfilled; (iii) trading or quotation in any of the Company’s securities shall have been suspended or limited by the Commission or by Nasdaq or trading in securities generally on Nasdaq, the New York Stock Exchange or the NYSE MKT shall have been suspended or limited; (iv) minimum or maximum prices for trading shall have been fixed, or maximum ranges for prices for securities shall have been required, on Nasdaq, the New York Stock Exchange or the NYSE MKT, by such exchange or by order of the Commission or any other Governmental Authority; (v) a banking moratorium shall have been declared by federal or state authorities; (vi) there shall have occurred any outbreak or escalation of hostilities or any change in financial markets or any calamity or crisis that, in your judgment, is material and adverse and makes it impractical or inadvisable to proceed with the completion of the sale of and payment for the Securities; or (vii) in the judgment of the Representative there shall have occurred any Material Adverse Change. Any such termination shall be without liability of any party to any other party except that the provisions of Section 4(a)(viii) and Section 6 hereof shall at all times be effective.

(b) If you elect to terminate this Agreement as provided in this Section 9, the Company shall be notified promptly by you by telephone, confirmed by letter.

Section 10. Default by the Company.

If the Company shall fail at the First Closing Date to sell and deliver the number of Securities which it is obligated to sell hereunder, then this Agreement shall terminate without any liability on the part of any Underwriter or, except as provided in Section 4(a)(viii) and Section 6 hereof, any non-defaulting party.

No action taken pursuant to this Section 10 shall relieve the Company so defaulting from liability, if any, in respect of such default.

Section 11. Notices.

Except as otherwise provided herein, all communications hereunder shall be in writing and, if to the Underwriters, shall be mailed or delivered to the Representative, c/o Cantor Fitzgerald & Co., Attention: Capital Markets, 499 Park Avenue, New York, NY 10022, Fax: (212) 307-3730, with a copy to the General Counsel, Fax: (212) 829-470, with a copy (which shall not constitute notice hereunder) to Latham & Watkins LLP, 12670 High Bluff Drive, San Diego, California 92130, Attention: Cheston Larson and Michael Sullivan; if to the Company, shall be mailed or delivered to it at AcelRx Pharmaceuticals, Inc., 351 Galveston Drive, Redwood City, California 94063 Attention: Chief Financial Officer, with a copy (which shall not constitute notice hereunder) to Cooley LLP, 3175 Hanover Street, Palo Alto, California 94304-1130, Attention: Mark Weeks. Any party to this Agreement may change such address for notices by sending to the parties to this Agreement written notice of a new address for such purpose.

Section 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 assigns, including any substitute Underwriter pursuant to Section 8 hereof, and the affiliates, directors, officers and control persons referred to in Section 6. Nothing in this Agreement is intended or shall be construed to give to any other person, firm or corporation any legal or equitable remedy or claim under or in respect of this Agreement or any provision herein contained. The term “successors and assigns” as herein used shall not include any purchaser, as such purchaser, of any of the Securities from any of the several Underwriters.

Section 13. Absence of Fiduciary Relationship.

The Company acknowledges and agrees that: (a) the Representative has been retained solely to act as an underwriter in connection with the sale of the Securities and that no fiduciary, advisory or agency relationship between the Company and the Representative has been created in respect of any of the transactions contemplated by this Agreement, irrespective of whether the Representative has advised or is advising the Company on other matters; (b) the price and other terms of the Securities set forth in this Agreement were established by the Company following discussions and arms-length negotiations with the Representative and the Company is capable of evaluating and understanding and understands and accepts the terms, risks and conditions of the transactions contemplated by this Agreement; (c) it has been advised that the Representative and its affiliates are engaged in a broad range of transactions which may involve interests that differ from those of the Company and that the Representative has no obligation to disclose such interest and transactions to the Company by virtue of any fiduciary, advisory or agency relationship; (d) it has been advised that the Representative is acting, in respect of the transactions contemplated by this Agreement, solely for the benefit of the Representative and the other Underwriters, and not on behalf of the Company; (e) it waives to the fullest extent permitted by law, any claims it may have against the Representative for breach of fiduciary duty or alleged breach of fiduciary duty in respect of any of the transactions contemplated by this Agreement and agrees that the Representative shall have no liability (whether direct or indirect) to the Company in respect of such a fiduciary duty claim on behalf of or in right of the Company, including stockholders, employees or creditors of the Company.

Section 14. Governing Law.

This Agreement shall be governed by and construed in accordance with the internal laws of the State of New York applicable to agreements made and to be performed in such state. Any legal suit, action or proceeding arising out of or based upon this Agreement or the transactions contemplated hereby may be instituted in the federal courts of the United States of America located in the Borough of Manhattan in the City of New York or the courts of the State of New York in each case located in the Borough of Manhattan in the City of New York (collectively, the “*Specified Courts*”), and each party irrevocably submits to the exclusive jurisdiction (except for proceedings instituted in regard to the enforcement of a judgment of any such court, as to which such jurisdiction is non-exclusive) of such courts in any such suit, action or proceeding. Service of any process, summons, notice or document by mail to such party’s address set forth above shall be effective service of process for any suit, action or other proceeding brought in any such court. The parties irrevocably and unconditionally waive any objection to the laying of venue of any suit, action or other proceeding in the Specified Courts and irrevocably and unconditionally waive and agree not to plead or claim in any such court that any such suit, action or other proceeding brought in any such court has been brought in an inconvenient forum.

Section Counterparts.
15.

This Agreement may be executed in one or more counterparts and, if executed in more than one counterpart, the executed counterparts shall each be deemed to be an original and all such counterparts shall together constitute one and the same instrument, with the same effect as if the signatures thereto and hereto were upon the same instrument.

Section General Provisions.
16.

This Agreement constitutes the entire agreement of the parties to this Agreement and supersedes all prior written or oral and all contemporaneous oral agreements, understandings and negotiations with respect to the subject matter hereof. This Agreement may not be amended or modified unless in writing by all of the parties hereto, and no condition herein (express or implied) may be waived unless waived in writing by each party whom the condition is meant to benefit. The section headings herein are for the convenience of the parties only and shall not affect the construction or interpretation of this Agreement. This Agreement shall become effective upon the execution and delivery hereof by the parties hereto.

Each of the parties hereto acknowledges that it is a sophisticated business person who was adequately represented by counsel during negotiations regarding the provisions hereof, including, without limitation, the indemnification and contribution provisions of Section 6, and is fully informed regarding said provisions. Each of the parties hereto further acknowledges that the provisions of Section 6 hereof fairly allocate the risks in light of the ability of the parties to investigate the Company, its affairs and its business in order to assure that adequate disclosure has been made in the Registration Statement, any preliminary prospectus, the Time of Sale Prospectus, each free writing prospectus and the Prospectus (and any amendments and supplements to the foregoing), as contemplated by the Act and the Exchange Act.

The invalidity or unenforceability of any section, paragraph or provision of this Agreement shall not affect the validity or enforceability of any other section, paragraph or provision hereof. If any section, paragraph or provision of this Agreement is for any reason determined to be invalid or unenforceable, there shall be deemed to be made such minor changes (and only such minor changes) as are necessary to make it valid and enforceable.

[Signature Pages Follow]

Please sign and return to the Company the enclosed duplicates of this instrument whereupon this instrument will become a binding agreement between the Company and the several Underwriters in accordance with its terms.

Very truly yours,

ACELRX PHARMACEUTICALS, INC.

By: /s/ Vincent J. Angotti

Name: Vincent J. Angotti

Title: CEO

Confirmed as of the date first above mentioned, acting individually and on behalf of the several Underwriters named in Schedule I hereto.

CANTOR FITZGERALD & CO.

By /s/ Sage Kelly

Name: Sage Kelly

Title: Global Head of IB

SCHEDULE I

Underwriter	Number of Firm Shares ⁽¹⁾
Cantor Fitzgerald & Co.	5,454,545
H.C. Wainwright & Co., LLC	1,236,364
Ladenburg Thalmann & Co. Inc.	581,818
Total	7,272,727

(1) The Underwriters may purchase up to an additional 1,090,909 Option Shares, to the extent the option described in Section 3(b) of the Agreement is exercised, in the proportions and in the manner described in the Agreement.

SCHEDULE II

Issuer General Use Free Writing Prospectuses

None.

SCHEDULE III

Pricing Information

Issuer:	AcelRx Pharmaceuticals, Inc. (Nasdaq: ACRX)
Maximum Number of Firm Shares:	7,272,727
Price Per Share:	\$2.75
Maximum Number of Option Shares:	1,090,909
Underwriting Discount:	\$0.1375 per share
Estimated Net Proceeds Before Expenses (assuming no exercise of option to purchase additional shares):	\$18,999,999.30

EXHIBIT A

____, 2018

CANTOR FITZGERALD & CO.

499 Park Avenue

New York, New York 10022

As representative of the several underwriters named in

Schedule I to the Underwriting Agreement referred to below

Dear Madam or Sir:

As an inducement to the underwriters (the “*Underwriters*”) to execute an underwriting agreement (the “*Underwriting Agreement*”) providing for the public offering (the “*Offering*”) of common stock, par value \$0.001 per share (the “*Common Stock*”), of AcelRx Pharmaceuticals, Inc., a Delaware company, and any successor (by merger or otherwise) thereto (the “*Company*”), the undersigned hereby agrees that without, in each case, the prior written consent of Cantor Fitzgerald & Co. (“*Cantor*”) (which may withhold its consent in its sole discretion), during the period commencing on the date of this Lock-Up Agreement and continuing to and including the 60th day after the date of the Underwriting Agreement (the “*Lock-Up Period*”), the undersigned will not (and will cause any Family Member not to): (1) Sell or Offer to Sell any shares of Common Stock or Related Securities or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock or any Related Securities (including without limitation, shares of Common Stock 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), whether currently or hereafter owned either of record or beneficially (as defined in Rule 13d-3 under the Exchange Act) by the undersigned or such Family Member, (2) enter into any Swap or (3) publicly announce any intention to do any of the foregoing. The foregoing will not apply to the registration of the offer and sale of the shares of Common Stock, and the sale of the shares of Common Stock to the Underwriters, in each case as contemplated by the Underwriting Agreement. In addition, the undersigned agrees that, without the prior written consent of Cantor (which may withhold its consent in its sole discretion), it will not, during the Lock-Up Period, make any demand for, or exercise any right with respect to, the registration under the Securities Act of the offer and sale of any shares of Common Stock or Related Securities (owned either of record or beneficially by the undersigned), or cause to be filed a registration statement, prospectus or prospectus supplement (or an amendment or supplement thereto) with respect to any such registration, and the undersigned hereby waives any such registration rights (including any rights to receive notice of the Offering).

Annex A sets forth definitions for capitalized terms used in this Lock-Up Agreement that are not defined in the body of this Lock-Up Agreement. Those definitions are a part of this Lock-Up Agreement.

The undersigned agrees that, prior to engaging in any transaction or taking any other action that is subject to the terms of this Lock-Up Agreement during the period from the date of this Lock-Up Agreement to the expiration of the Lock-Up Period, it will give notice thereof to the Company and will not consummate such transaction or take any such action unless it has received written confirmation from the Company that the Lock-Up Period has expired.

Notwithstanding the foregoing, the restrictions set forth in this Lock-Up Agreement shall not apply to the transfer of Common Stock or Related Securities: (1) as a *bona fide* gift or gifts; (2) by will or intestate succession; (3) to any trust for the benefit of the undersigned or the Family Members of the undersigned; (4) if the undersigned is a limited liability company, to a member or an Affiliate of such limited liability company; and (5) if the undersigned is a partnership, to a partner or an Affiliate of such partnership; *provided*, in each case, that (x) such transfer shall not involve a disposition for value, (y) each transferee shall agree with Cantor (in a written agreement in form and substance satisfactory to Cantor) to be bound by the terms of this Lock-Up Agreement, including each of the limitations contained herein, as if such transferee had been an original signatory hereto, and (z) no filing by any party to the transfer under Section 16(a) of the Exchange Act shall be required or shall be made voluntarily in connection with such transfer (other than a filing of a Form 5 made after the expiration of the Lock-Up Period).

In addition, the foregoing restrictions shall not apply to (1) the exercise or settlement of any equity awards held by the undersigned as of the date of this Lock-Up Agreement pursuant to the Company's existing equity incentive plans or the exercise of warrants issued by the Company that are held by the undersigned as of the date of this Lock-Up Agreement; *provided* that, in each case, (i) the restrictions on transfer set forth herein shall apply to any securities issued upon such exercise and (ii) no filing by any party to the transfer under Section 16(a) of the Exchange Act shall be required or shall be made voluntarily in connection with such exercise or settlement; (2) any transfers of the undersigned's shares of Common Stock to the Company in full or partial payment of exercise or purchase prices and taxes or tax withholding obligations required to be paid or satisfied upon the settlement, vesting or exercise of any equity award or warrant granted or issued by the Company that is held by the undersigned as of the date of this Lock-Up Agreement; *provided* that no filing by any party to the transfer under Section 16(a) of the Exchange Act shall be required or shall be made voluntarily in connection with any such transfer; (3) any transfers of the undersigned's shares of Common Stock pursuant to a sale or an offer to purchase 100% of the outstanding Common Stock of the Company, whether pursuant to a merger, tender offer or otherwise, to a third party or group of third parties; *provided* that, (i) in the event any such merger, tender offer or other transaction is not completed, such shares shall remain subject to the provisions of this Lock-Up Agreement and (ii) no filing by any party to the transfer under Section 16(a) of the Exchange Act shall be required or shall be made voluntarily in connection with such transaction; (4) sales or transfers of the undersigned's shares of Common Stock or Related Securities made pursuant to a trading plan pursuant to Rule 10b5-1 under the Exchange Act (a "10b5-1 Plan") that has been entered into by the undersigned prior to the date of this agreement; *provided*, that to the extent a public announcement or filing under the Exchange Act, if any, is required or voluntarily made by or on behalf of the undersigned or the Company regarding any such sales or transfers, such announcement or filing shall include a statement to the effect that the sale or transfer was made pursuant to a 10b5-1 Plan; or (5) the establishment of a new 10b5-1 Plan; *provided* that (i) no sales of the undersigned's Common Stock or Related Securities shall be made pursuant to such 10b5-1 Plan, and such 10b5-1 Plan shall not provide for any such sales, prior to the expiration of the Lock-Up Period, and (ii) no public announcement of the establishment or existence of such 10b5-1 Plan and no filing with the Securities and Exchange Commission or other regulatory authority in respect thereof or transactions thereunder or contemplated thereby, by the undersigned, the Company or any other person, shall be required, and no such announcement or filing shall be made voluntarily by the undersigned, the Company or any other person, prior to the expiration of the Lock-Up Period.

In furtherance of the foregoing, the undersigned also agrees that the Company and its transfer agent and registrar are hereby authorized to enter stop transfer instructions with the Company's transfer agent and registrar against the transfer of shares of Common Stock or Related Securities and to decline to make any transfer of shares of Common Stock held by the undersigned and the undersigned's Family Members if such transfer would constitute a violation or breach of this Lock-Up Agreement.

The undersigned hereby agrees that, to the extent that the terms of this Lock-Up Agreement conflict with or are in any way inconsistent with any registration rights agreement to which the undersigned and the Company may be a party, this Lock-Up Agreement supersedes such registration rights agreement.

The undersigned hereby represents and warrants that the undersigned has full power and authority to enter into this Lock-Up Agreement. This Lock-Up Agreement is irrevocable and all authority herein conferred or agreed to be conferred and any obligations of the undersigned shall be binding upon the successors, assigns, heirs and personal representatives of the undersigned.

The undersigned confirms that the undersigned has not, and has no knowledge that any Family Member has, directly or indirectly, taken any action designed to or that might reasonably be expected to cause or result in the stabilization or manipulation of the price of any security of the Company to facilitate the sale of the shares of Common Stock. The undersigned will not, and will cause any Family Member not to take, directly or indirectly, any such action.

Whether or not the Offering occurs as currently contemplated or at all depends on market conditions and other factors. The Offering will only be made pursuant to the Underwriting Agreement, the terms of which are subject to negotiation between the Company and the Underwriters.

The undersigned acknowledges that the Underwriters will enter into the Underwriting Agreement and conduct the Offering in reliance upon this Lock-Up Agreement and the representations and warranties of the undersigned contained herein. The undersigned recognizes that the Offering will benefit each of the Company and the undersigned.

The undersigned shall be released from its obligations under this Lock-Up Agreement if (i) the Company notifies the Underwriters that it does not intend to proceed with the Offering, (ii) the Underwriting Agreement does not become effective, 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 or (iii) the Offering is not completed by July 31, 2018.

This Lock-Up Agreement shall be governed by, and construed in accordance with, the laws of the State of New York.

Signature

Printed Name of Person Signing

(Indicate capacity of person signing if signing as custodian or trustee, or on behalf of an entity)

Annex A
Certain Defined Terms
Used in Lock-up
Agreement

For purposes of the letter agreement to which this Annex A is attached and of which it is made a part:

- “*Affiliate*” shall mean any business entity that directly, or indirectly through one or more intermediaries, controls, is controlled by or is under common control with, the undersigned.
- “*Control*” as used above shall mean beneficial ownership of more than fifty percent (50%) of the issued and outstanding equity interests or share capital of an entity.
- “*Call Equivalent Position*” shall have the meaning set forth in Rule 16a-1(b) under the Exchange Act.
- “*Exchange Act*” shall mean the Securities Exchange Act of 1934, as amended.
- “*Family Member*” shall mean the spouse of the undersigned, an immediate family member of the undersigned or an immediate family member of the undersigned’s spouse, in each case living in the undersigned’s household or whose principal residence is the undersigned’s household (regardless of whether such spouse or family member may at the time be living elsewhere due to educational activities, health care treatment, military service, temporary internship or employment or otherwise). “*Immediate family member*” as used above shall have the meaning set forth in Rule 16a-1(e) under the Exchange Act.
- “*Put Equivalent Position*” shall have the meaning set forth in Rule 16a-1(h) under the Exchange Act.
- “*Related Securities*” shall mean any options or warrants or other rights to acquire Common Stock or any securities exchangeable or exercisable for or convertible into Common Stock, or to acquire other securities or rights ultimately exchangeable or exercisable for or convertible into Common Stock.
- “*Securities Act*” shall mean the Securities Act of 1933, as amended.
- “*Sell or Offer to Sell*” shall mean to:
 - sell, offer to sell, contract to sell or lend,
 - effect any short sale or establish or increase a Put Equivalent Position or liquidate or decrease any Call Equivalent Position
 - pledge, hypothecate or grant any security interest in, or
 - in any other way transfer or dispose of, in each case whether effected directly or indirectly.

- “*Swap*” shall mean any swap, hedge or similar arrangement or agreement that transfers, in whole or in part, the economic risk of ownership of Common Stock or Related Securities, regardless of whether any such transaction is to be settled in securities, in cash or otherwise. The Lock-Up Agreement is expressly agreed to preclude the undersigned from engaging in any hedging or other transaction which is designed to or which reasonably could be expected to lead to or result in a sale or disposition of the undersigned’s Common Stock or Related Securities even if such Common Stock or Related Securities would be disposed of by someone other than the undersigned. Such prohibited hedging or other transactions would include without limitation any short sale or any purchase, sale or grant of any right (including without limitation any put or call option) with respect to any of the undersigned’s Common Stock or Related Securities or with respect to any security that includes, relates to, or derives any significant part of its value from such Common Stock or Related Securities.

Capitalized terms not defined in this Annex A shall have the meanings given to them in the body of this Lock-Up Agreement.

EXHIBIT B

Lock-Up Agreement Signatories:

Officers

Vincent J. Angotti, Director, Chief Executive Officer
Raffi Asadorian, Chief Financial Officer
Pamela P. Palmer, Director, Chief Medical Officer and Co-Founder
Lawrence G. Hamel, Chief Development Officer
Badri Dasu, Chief Engineering Officer
John G. Saia, General Counsel and Secretary

Directors

Howard B. Rosen
Mark Wan
Adrian Adams
Richard Afile
Mark G. Edwards
Stephen J. Hoffman



Robert W. Phillips
+1 415 693 2020
rphillips@cooley.com

July 13, 2018

AcelRx Pharmaceuticals, Inc.
351 Galveston Drive
Redwood City, CA 94063

Ladies and Gentlemen:

We have acted as counsel to AcelRx Pharmaceuticals, Inc., a Delaware corporation (the "**Company**"), in connection with the offering of up to 8,363,636 shares of the Company's common stock, par value \$0.001 per share (the "**Shares**"), including up to 1,090,909 shares that may be sold pursuant to the exercise of an option to purchase additional shares, pursuant to the Registration Statement on Form S-3 (Registration Statement No. 333-218506) (the "**Registration Statement**") filed with the Securities and Exchange Commission (the "**Commission**") under the Securities Act of 1933, as amended (the "**Act**"), the prospectus included in the Registration Statement (the "**Base Prospectus**"), and the prospectus supplement relating to the Shares to be filed with the Commission pursuant to Rule 424(b) promulgated under the Act (together with the Base Prospectus, the "**Prospectus**").

In connection with this opinion, we have examined and relied upon (a) the Registration Statement and the Prospectus, (b) the Company's Certificate of Incorporation and Bylaws, each as currently in effect, and (c) originals, or copies certified to our satisfaction, of such records, documents, certificates, opinions, memoranda and other instruments as in our judgment are necessary or appropriate to enable us to render the opinion expressed below. As to certain factual matters, we have relied upon a certificate of an officer of the Company and have not sought independently to verify such matters. We have assumed the genuineness and authenticity of all signatures on original documents; the authenticity of all documents submitted to us as originals; the conformity to originals of all documents submitted to us as copies thereof; and the accuracy, completeness and authenticity of certificates of public officials.

Our opinion herein is expressed solely with respect to the General Corporation Law of the State of Delaware. We express no opinion to the extent that any other laws are applicable to the subject matter hereof and express no opinion and provide no assurance as to compliance with any federal or state securities law, rule or regulation.

On the basis of the foregoing, and in reliance thereon, we are of the opinion that, the Shares, when sold and issued in accordance with the Registration Statement and the Prospectus, will be validly issued, fully paid and nonassessable.

We hereby consent to the reference to our firm under the caption "Legal Matters" in the Prospectus and to the filing of this opinion as an exhibit to a Current Report on Form 8-K to be filed with the Commission for incorporation by reference into the Registration Statement. This opinion is expressed as of the date hereof, and we disclaim any responsibility to advise you of any changes in the facts stated or assumed herein or any changes in applicable law.

Sincerely,

Cooley LLP

By: /s/Robert W. Phillips
Robert W. Phillips

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Cooley LLP 101 California Street 5th Floor San Francisco, CA 94111-5800
t: (415) 693-2000 f: (415) 693-2222 cooley.com