

**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): May 9, 2022**

**Fulcrum Therapeutics, Inc.**

(Exact name of registrant as specified in charter)

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

**001-38978**  
(Commission  
File Number)

**47-4839948**  
(IRS Employer  
Identification No.)

**26 Landsdowne Street**  
**Cambridge, Massachusetts**  
(Address of principal executive offices)

**02139**  
(Zip Code)

**Registrant's telephone number, including area code: (617) 651-8851**

**Not applicable**  
(Former name or former address, if changed since last report)

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

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

Securities registered pursuant to Section 12(b) of the Act:

<b>Title of each class</b>	<b>Trading symbol</b>	<b>Name of each exchange on which registered</b>
<b>Common Stock \$0.001 par value per share</b>	<b>FULC</b>	<b>The Nasdaq Global Market</b>

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 1.01 Entry into a Material Definitive Agreement.

On May 9 2022, Fulcrum Therapeutics, Inc. (the “Company”) entered into an equity distribution agreement (the “Agreement”) with Piper Sandler & Co., as sales agent (the “Sales Agent”), with respect to an at-the-market offering program pursuant to which the Company may offer and sell, from time to time in its sole discretion, shares of the Company’s common stock, par value \$0.001 per share (the “Common Stock”), having an aggregate offering price of up to \$50 million (the “Shares”) through the Sales Agent (the “Offering”).

Any Shares offered and sold in the Offering will be issued pursuant to the registration statement on Form S-3 (File No. 333-260754), initially filed with the Securities and Exchange Commission (the “Commission”) on November 4, 2021, as amended or supplemented (the “Registration Statement”), the prospectus supplement relating to the Offering filed with the SEC on May 9, 2022, and any applicable additional prospectus supplements related to the Offering that form a part of the Registration Statement.

The Sales Agent may sell the Shares by any method permitted by law deemed to be an “at the market offering” as defined in Rule 415(a)(4) of the Securities Act of 1933, as amended, including, without limitation, sales made (A) in privately negotiated transactions; (B) as block transactions; or (C) by any other method permitted by law that is deemed to be an “at the market offering, including sales made directly through The Nasdaq Global Market (“Nasdaq”) or on any other existing trading market for the Common Stock, in each case, subject to the prior written consent of the Company. The Sales Agent will use commercially reasonable efforts to sell the Shares from time to time consistent with their normal sales practices and applicable federal rules, regulations and Nasdaq rules, based upon instructions from the Company (including any price, time or size limits or other customary parameters or conditions the Company may impose). The Company will pay the Sales Agent a commission equal to 3.0% of the gross sales proceeds of any Shares sold through the Sales Agent under the Agreement, and also has provided the Agent with customary indemnification and contribution rights.

The Sales Agent is not required to sell any specific number or dollar amount of securities, but will use commercially reasonable efforts to sell, on behalf of the Company, all of the shares of Common Stock requested to be sold by the Company, consistent with their normal trading and sales practices, on mutually agreed terms among the Sales Agent and the Company. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

The foregoing description of the Agreement is not complete and is qualified in its entirety by reference to the full text of the Agreement, a copy of which is filed herewith as Exhibit 1.1 to this Current Report on Form 8-K and is incorporated herein by reference. A copy of the opinion of Goodwin Procter LLP relating to the legality of the issuance and sale of the shares in the Offering is attached as Exhibit 5.1 hereto.

This Current Report on Form 8-K shall not constitute an offer to sell or the solicitation of an offer to buy the securities discussed herein, nor shall there be any offer, solicitation, or sale of the securities in any state in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such state.

### Item 9.01 Financial Statements and Exhibits.

(d) Exhibits:

<u>Exhibit No.</u>	<u>Description</u>
1.1	<a href="#">Equity Distribution Agreement, dated May 9, 2022, by and between the Company and Piper Sandler &amp; Co.</a>
5.1	<a href="#">Opinion of Goodwin Procter LLP as to the legality of the securities being registered</a>
23.1	<a href="#">Consent of Goodwin Procter LLP (contained in Exhibit 5.1 above)</a>
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

**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.

**FULCRUM THERAPEUTICS, INC.**

Date: May 9, 2022

By: /s/ Bryan E. Stuart

Name: Bryan E. Stuart

Title: President and Chief Executive Officer

## FULCRUM THERAPEUTICS, INC.

Common Stock

EQUITY DISTRIBUTION AGREEMENT

May 9, 2022

PIPER SANDLER & CO.  
U.S. Bancorp Center  
800 Nicollet Mall  
Minneapolis, Minnesota 55402

Ladies and Gentlemen:

As further set forth in this agreement (this "**Agreement**"), Fulcrum Therapeutics, Inc., a Delaware corporation (the "**Company**"), proposes to issue and sell from time to time through Piper Sandler & Co. (the "**Agent**"), as sales agent, the Company's common stock, par value \$0.001 per share (the "**Common Stock**") having an aggregate gross offering price of up to \$50,000,000 (such shares of Common Stock to be sold pursuant to this Agreement, the "**Shares**") on terms set forth herein. Notwithstanding anything to the contrary contained herein, the parties hereto agree that compliance with the limitation set forth in Section 2 of this Agreement on the number of Shares issued and sold under this Agreement shall be the sole responsibility of the Company, and the Agent shall have no obligation in connection with such compliance.

The Company hereby confirms its agreement with the Agent with respect to the sale of the Shares.

**1. Representations and Warranties of the Company.**

(a) The Company represents and warrants to, and agrees with, the Agent that, unless such representation, warranty or agreement species a different time, as of the date of this Agreement, each Representation Date (as defined in Section 3(o) below), each date on which a Placement Notice (as defined in Section 2(a)(i) below) is given (each, a "**Notice Date**"), and each date on which Shares are sold hereunder (each, an "**Applicable Time**"), and each Settlement Date (as defined in Section 2(a)(vii) below) as follows:

(i) *Registration Statement and Prospectus.* The Company has filed, in accordance with the provisions of the Securities Act of 1933, as amended, and the rules and regulations thereunder (collectively, the "**Securities Act**"), with the Securities and Exchange Commission (the "**Commission**") a registration statement on Form S-3, including a base prospectus, relating to certain securities, including the Common Stock, to be issued from time to time by the Company, and which incorporates by reference documents that the Company has filed or will file in accordance with the provisions of the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder (collectively, the "**Exchange Act**"). The Company has prepared a prospectus supplement to the base prospectus included as part of such registration statement specifically relating to the Shares (the "**Prospectus Supplement**"). The Company has furnished to the Agent, for use by Agent, copies of the prospectus included as part of such registration statement as supplemented by the Prospectus Supplement, relating to the Shares. Except where the context otherwise requires, such registration statement, as amended when it became effective, including all documents filed as part thereof or incorporated by reference therein, and including any information contained in a Prospectus (as defined below) subsequently filed with the Commission pursuant to Rule 424(b) under the Securities Act or deemed to be a part of such

registration statement pursuant to Rule 430B or 462(b) of the Securities Act is herein called the **“Registration Statement.”** The base prospectus, including all documents incorporated therein by reference, included in the Registration Statement, as it may be supplemented by the Prospectus Supplement, in the form in which such prospectus and/or Prospectus Supplement have most recently been filed by the Company with the Commission pursuant to Rule 424(b) under the Securities Act, together with any **“issuer free writing prospectus,”** as defined in Rule 433 of the Securities Act (**“Rule 433”**), relating to the Shares, if any, that (i) is required to be filed with the Commission by the Company or (ii) is exempt from filing pursuant to Rule 433(d)(5)(i), in each case 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), is herein called the **“Prospectus.”** Any reference herein to the Registration Statement, the Prospectus or any amendment or supplement thereto shall be deemed to refer to and include the documents incorporated by reference therein, and any reference herein to the terms “amend,” “amendment” or “supplement” with respect to the Registration Statement or the Prospectus shall be deemed to refer to and include the filing after the execution hereof of any document with the Commission deemed to be incorporated by reference therein. For purposes of this Agreement, all references to the Registration Statement, the Prospectus or to any amendment or supplement thereto shall be deemed to include any copy filed with the Commission pursuant the Electronic Data Gathering Analysis and Retrieval System (**“EDGAR”**). The Company’s obligations under this Agreement to furnish, provide, deliver or make available (and all other references of like import) copies of any filing, report or statement shall be deemed satisfied if the same is filed with the Commission through EDGAR or any successor system.

(ii) *Continuing Effectiveness of Registration Statement.* The Company has complied with all requests of the Commission for additional or supplemental information. No stop order suspending the effectiveness of the Registration Statement or any Rule 462(b) Registration Statement, if any, is in effect and no proceedings for such purpose have been instituted or are pending or, to the knowledge of the Company, contemplated or threatened by the Commission. The Company meets the requirements for use of Form S-3 under the Securities Act. The sale of the Shares hereunder meets the requirements of General Instruction I.B.1. of Form S-3.

(iii) *No Material Misstatements or Omissions.* The Prospectus when filed complied, and as amended or supplemented, if applicable, will comply in all material respects with the Securities Act. Each of the Registration Statement, any Rule 462(b) Registration Statement, the Prospectus and any post-effective amendments or supplements thereto, at the time it became effective or its date, as applicable, complied in all material respects with the Securities Act, and, as of each effective date, did not and will not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading. The Prospectus, as amended or supplemented, as of its date, did not and will not contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading. The representations and warranties set forth in the two immediately preceding sentences do not apply to statements in or omissions from the Registration Statement, any Rule 462(b) Registration Statement, or any post-effective amendment thereto, or the Prospectus, or any amendments or supplements thereto, made in reliance upon and in conformity with information relating to the Agent furnished to the Company in writing by the Agent expressly for use therein. There are no contracts or other documents required to be filed as exhibits to the Registration Statement which have not filed as required.

(iv) *Eligible Issuer.* The Company is not an “ineligible issuer” in connection with the offering pursuant to Rules 164, 405 and 433 under the Securities Act. Any free writing prospectus that the Company is required to file pursuant to Rule 433(d) under the Securities Act has been, or will be, filed with the Commission in accordance with the requirements of the Securities Act and the applicable rules and regulations of the Commission thereunder. Each free writing prospectus that the Company has filed, or is required to file, pursuant to Rule 433(d) under the Securities Act or that was prepared by or on behalf of or used or referred to by the Company complies or will comply in all material respects with the requirements of the Securities Act and the applicable rules and regulations of the Commission thereunder. Except for the free writing prospectuses, if any, and electronic road shows, if any, each furnished to the Agent before first use, the Company has not prepared, used or referred to, and will not, without the prior consent of the Agent, prepare, use or refer to, any free writing prospectus.

(v) *Emerging Growth Company.* From the time of initial filing of the Registration Statement to the Commission through the date of this Agreement, the Company has been and is an “*emerging growth company*,” as defined in Section 2(a) of the Securities Act.

(vi) *Financial Statements.* The consolidated financial statements of the Company included in the Registration Statement and the Prospectus, together with the related notes, present fairly in all material respects the financial position of the Company and its consolidated subsidiaries at the dates indicated and, in the case of the statements of operations, stockholders’ equity and cash flows of the Company and its consolidated subsidiaries, for the periods specified. The consolidated financial statements of the Company included in the Registration Statement and the Prospectus comply in all material respects with the applicable requirements of the Securities Act and have been prepared in conformity with U.S. generally accepted accounting principles (“*GAAP*”) applied on a consistent basis throughout the periods involved except (i) the unaudited, interim 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 and (ii) as otherwise disclosed therein. Except as included therein, no supporting schedules are required to be included or incorporated by reference in the Registration Statement or the Prospectus under the Securities Act and the rules and regulations of the Commission thereunder. All other financial information included in the Registration Statement and the Prospectus has been derived from the accounting records of the Company and its consolidated subsidiaries and presents fairly in all material respects the information shown thereby.

(vii) *Auditor Independence.* Ernst & Young LLP, which has certified certain financial statements of the Company and its subsidiaries, is an independent registered public accounting firm as required by the Securities Act and the rules and regulations of the Commission thereunder and the rules and regulations of the Public Company Accounting Oversight Board (United States).

(viii) *Organization and Good Standing.* The Company has been duly incorporated, is validly existing as a corporation in good standing under the laws of the State of Delaware, has the corporate power and authority to own its property and to conduct its business as described in the Prospectus and is duly qualified to transact business and is in good standing in each jurisdiction in which the conduct of its business or its ownership or leasing of property requires such qualification, except to the extent that the failure to be so qualified or be in good standing would not have a material adverse effect on the Company and its subsidiaries, taken as a whole. Each of the Company’s subsidiaries has been duly organized, is validly existing and in good standing under the laws of the applicable jurisdiction of organization, has the corporate power and authority to own its property and to conduct its business as described in the Prospectus and is duly qualified to transact business and is in good standing in each jurisdiction in which the conduct of its business

or its ownership or leasing of property requires such qualification, except to the extent that the failure to be so qualified or be in good standing would not reasonably be expected to have a material adverse effect on the Company and its subsidiaries, taken as a whole. The Company does not, directly or indirectly, own capital stock or other equity or ownership or proprietary interests in any corporation, partnership, association, trust or other entity other than the subsidiaries listed in Exhibit 21.1 to the most recent annual report on Form 10-K and incorporated by reference in the Registration Statement and the Prospectus.

(ix) *No Ratings.* Neither the Company nor its subsidiaries have any securities rated by any “nationally recognized statistical rating organization,” as such term is defined in Section 3(a)(62) of the Exchange Act.

(x) *Capitalization.* All shares of the Company outstanding prior to the issuance of the Shares have been duly authorized and validly issued, are fully paid and non-assessable. All of the issued shares of capital stock of each subsidiary of the Company have been duly and validly authorized and issued, are fully paid and non-assessable and are owned directly or indirectly by the Company, free and clear of all liens, encumbrances, equities or claims.

(xi) *Due Authorization, Valid Issuance and Non-Assessibility of Shares.* The Shares to be issued and sold by the Company hereunder have been duly authorized and, upon payment and delivery of such Shares in accordance with this Agreement, will be validly issued, fully paid and non-assessable, and the issuance of such Shares will not be subject to any preemptive or similar rights that have not been validly waived.

(xii) *Authority to Enter into this Agreement.* This Agreement has been duly and validly authorized, executed and delivered by the Company.

(xiii) *Non-Contravention.* Neither the execution and delivery by the Company of, and the performance by the Company of its obligations under, this Agreement, nor the issuance and sale of the Shares, will (A) contravene any provision of applicable law, (B) contravene any provision of the certificate of incorporation or by-laws of the Company, (C) conflict with or result in a breach or violation of any of the terms or provisions of, or constitute a default under, any agreement or other instrument binding upon the Company or its subsidiaries that is material to the Company and its subsidiaries, taken as a whole, or (D) result in any violation of any judgment, order or decree of any governmental body, agency or court having jurisdiction over the Company or its subsidiaries, except, in the case of clause (A) and (C), as would not, individually or in the aggregate, reasonably be expected to have a material adverse effect on the Company and its subsidiaries, taken as a whole, or on the power and ability of the Company to perform its obligations under this Agreement.

(xiv) *No Consent or Approval Required.* No consent, approval, authorization or order of, or qualification with, any governmental body or agency is required for the issue and sale of the Shares or for the performance by the Company of its obligations under this Agreement, except (A) for the registration of the Shares under the Securities Act and (B) such as have already been obtained or made or as may be required by the securities or Blue Sky laws of the various states or the rules and regulations of the Financial Industry Regulatory Authority (“*FINRA*”) or the Nasdaq Global Market in connection with the offer and sale of the Shares.

(xv) *Internal Controls*. The Company and its subsidiaries maintain a system of internal accounting controls sufficient to provide reasonable assurance that (A) transactions are executed in accordance with management's general or specific authorizations; (B) transactions are recorded as necessary to permit preparation of financial statements in conformity with generally accepted accounting principles and to maintain asset accountability; (C) access to assets is permitted only in accordance with management's general or specific authorization; and (D) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences. Except as described in the Prospectus, since the end of the Company's most recent audited fiscal year, there has been (A) no material weakness in the Company's internal control over financial reporting (whether or not remediated) and (B) 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.

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

(xvii) *Disclosure Controls*. The Company maintains disclosure controls and procedures (as such term is defined in Rule 13a-15(e) under the Exchange Act designed to comply with the requirements of the Exchange Act applicable to the Company. Such disclosure controls and procedures have been designed to ensure that material information relating to the Company is made known to the Company's principal executive officer and principal financial officer by others within the Company.

(xviii) *Exceptions*. Subsequent to the respective dates as of which information is given in each of the Registration Statement and the Prospectus, (A) the Company and its subsidiaries have not incurred any material liability or obligation, direct or contingent, nor entered into any material transaction; (B) the Company has not purchased any of its outstanding capital stock (other than from its employees or other service providers in connection with termination of such individuals' service to the Company pursuant to plans or agreements, as applicable), nor declared, paid or otherwise made any dividend or distribution of any kind on its capital stock other than ordinary and customary dividends; and (C) there has not been any material change in the capital stock, short-term debt or long-term debt of the Company and its subsidiaries, except in each case as described in each of the Registration Statement and the Prospectus, respectively.

(xix) *Valid Title*. Except as described in the Prospectus, the Company and each of its subsidiaries do not own any real property and have good and marketable title to all personal property owned by them which is material to the business of the Company and its subsidiaries, in each case free and clear of all liens, encumbrances and defects, except such as are described in the Prospectus or such as do not materially affect the value of such property and do not interfere in any material respect with the use made and proposed to be made of such property by the Company and its subsidiaries; and any real property and buildings held under lease by the Company and each of its subsidiaries are held by them, as applicable, under valid, subsisting and, to the Company's knowledge, enforceable leases with such exceptions as are not material and do not interfere in any material respect with the use made and proposed to be made of such property and buildings by the Company and each of its subsidiaries, in each case except as described in the Prospectus.

(xx) *Intellectual Property*. Except as described in the Registration Statement or Prospectus, the Company and each of its subsidiaries own or have a valid license to all patents and patent applications, inventions, copyrights, know how (including trade secrets and other unpatented and/or unpatentable proprietary or confidential information, systems or procedures), trademarks, service marks and trade names (collectively, "**Intellectual Property Rights**") used in or reasonably



necessary for the conduct of the Company's and its subsidiaries' businesses in the manner described in the Registration Statement and the Prospectus. Furthermore, except as described in the Registration Statement or Prospectus, (A) the Intellectual Property Rights owned by the Company and each of its subsidiaries and, to the Company's knowledge, the Intellectual Property Rights licensed to the Company and each of its subsidiaries, are valid, subsisting and enforceable, and there is no pending or, to the Company's knowledge, threatened action, suit, proceeding or claim by others challenging the validity, scope, inventorship, ownership or enforceability of any such Intellectual Property Rights; (B) neither the Company nor any of its subsidiaries has received any notice alleging any infringement, misappropriation or other violation of Intellectual Property Rights; (C) to the Company's knowledge, no third party is infringing, misappropriating or otherwise violating, or has infringed, misappropriated or otherwise violated, any Intellectual Property Rights owned by the Company that would materially adversely affect the Company and each of its subsidiaries, taken as a whole; (D) neither the Company nor any of its subsidiaries infringes, misappropriates or otherwise violates (including, if the Company's product candidates described in the Prospectus were manufactured, marketed, used or sold as of the date hereof) in any material respect, or has infringed, misappropriated or otherwise violated, any right or valid patent claim of any third party in any material respect; (E) all employees, consultants or contractors engaged in the development of Intellectual Property Rights on behalf of the Company or any of its subsidiaries have executed an invention assignment agreement whereby such employees, consultants or contractors presently assign all of their right, title and interest in and to such Intellectual Property Rights to the Company or any of its subsidiaries, and to the Company's knowledge no such agreement has been breached or violated in any material respect; (F) the Company and each of its subsidiaries use, and have used, commercially reasonable efforts to appropriately maintain all information intended to be maintained as a trade secret; (G) to the knowledge of the Company, none of the Intellectual Property Rights of the Company have been obtained or are being used by the Company in material violation of any contractual obligation binding on the Company or, to the knowledge of the Company, upon any of its officers, consultants, directors or employees; (H) the Intellectual Property Rights owned or purported to be owned by the Company are free and clear of all material liens or encumbrances; (I) no third party, including any academic or governmental organization, possesses rights to the Intellectual Property Rights of the Company which, if exercised, could enable such party to develop, market or sell products competitive with those of the Company or to license a third party to so develop, market or sell products competitive with those of the Company; (J) except as described in the Prospectus, the Company is not obligated to pay a material royalty, grant a license to, obtain a license from or provide other material consideration to any third party in connection with the Intellectual Property Rights of the Company; and (K) all patents and patent applications owned by or licensed to the Company and included within the Intellectual Property Rights, to the knowledge of the Company, have been duly and properly filed, prosecuted and maintained.

(xxi) *Compliance with Health Care Laws.* The Company and its subsidiaries (A) are and at all times have been, in all material respects, in compliance with all statutes, rules, and regulations applicable to the ownership, research, testing, development, manufacture, packaging, processing, use, storage, import, export or disposal of any product candidates of the Company or its subsidiaries, including, without limitation, the Federal Food, Drug and Cosmetic Act (21 U.S.C. § 301 et seq.), the regulations promulgated pursuant to such laws, and any successor government programs, and comparable state laws, and all other local, state, federal, and foreign laws, rules, regulations, policies and final administrative guidance relating to the regulation of the Company (collectively, the "**Applicable Regulatory Laws**"); (B) possess all licenses, exemptions, certificates, approvals, consents, clearances, authorizations, permits, registrations and supplements or amendments thereto required by any such Applicable Regulatory Laws ("**Regulatory Authorizations**") and such Regulatory Authorizations are valid and in full force and effect; (C) are

in compliance, in all material respects, with and are not in violation of, or in default under, any such Regulatory Authorization, and to the Company's knowledge, no event has occurred which allows, or after notice or lapse of time would allow, revocation, termination or modification of any Regulatory Authorization or result in any other material impairment of the rights of the holder of any Regulatory Authorization, and the Company does not have any reason to believe that any Regulatory Authorization will not be renewed in the ordinary course; (D) have not received written notice that any court or arbitrator or governmental or regulatory authority has taken, is taking, or intends to take action to limit, suspend, modify or revoke any Regulatory Authorizations nor, to the Company's knowledge, is any such limitation, suspension, modification or revocation threatened; (E) have not received any notice of any claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action, or any U.S. Food and Drug Administration ("**FDA**") Form 483, notice of adverse finding, warning letter, untitled letter or other communication from any court or arbitrator or governmental or regulatory authority alleging or asserting non-compliance with any Applicable Regulatory Laws or Regulatory Authorizations, nor, to the Company's knowledge, is any such claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action or communication threatened; (F) have filed, obtained, maintained or submitted all material reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments as required by any Applicable Regulatory Laws or Regulatory Authorizations, and all such reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments were complete and accurate on the date filed in all material respects (or were corrected or supplemented by a subsequent submission); and (G) are not a party to any corporate integrity agreements, monitoring agreements, consent decrees, settlement orders, or similar agreements with or imposed by any governmental or regulatory authority. Except as described in the Registration Statement or Prospectus, none of the Company's or its subsidiaries' product candidates has received marketing approval from any Regulatory Authority.

(xxii) *Clinical Trials*. All clinical and pre-clinical trials conducted by or on behalf of, or sponsored by, the Company or its subsidiaries, or in which the Company or its subsidiaries have participated, that are described or referred to in the Registration Statement and the Prospectus were and, if still pending, are being conducted, in all material respects, in compliance with the experimental protocols established for such trials, with accepted medical and scientific standards, and with all Applicable Regulatory Laws, including regulations relating to Good Clinical Practices and Good Laboratory Practices, and all Regulatory Authorizations. The descriptions of the clinical and pre-clinical trials, including the results thereof, contained in the Registration Statement and the Prospectus are accurate and complete in all material respects and fairly present the data derived from such trials in all material respects; and neither the Company nor its subsidiaries are aware of any other clinical or pre-clinical trials, the results of which reasonably call into question the results described in the Registration Statement and the Prospectus. Neither the Company nor its subsidiaries have received any notices or correspondence from FDA or similar foreign, state, and local governmental or regulatory authorities or institutional review boards or comparable authorities requiring the termination, suspension, material modification or clinical hold of any clinical or pre-clinical trials conducted by or on behalf of the Company, and to the Company's knowledge, there are no reasonable grounds for the same.

(xxiii) *Absence of Legal or Governmental Proceedings*. There are no legal or governmental proceedings pending or, to Company's knowledge, threatened to which the Company or its subsidiaries is a party or to which any of the properties of the Company or its subsidiaries is subject (A) other than proceedings described in the Prospectus and proceedings that, singly or in the aggregate, would not have a material adverse effect on the Company and its subsidiaries, taken as a whole, or on the power or ability of the Company to perform its obligations under this Agreement or to consummate the transactions contemplated by the Prospectus or (B) that are required to be described in the Registration Statement or the Prospectus and are not so described.

(xxiv) *Material Contracts*. There are no statutes, regulations, contracts or other documents that are required to be described in the Registration Statement or the Prospectus or to be filed as exhibits to the Registration Statement that are not described or filed as required.

(xxv) *Insurance*. The Company and each of its subsidiaries are insured by insurers of recognized financial responsibility against such losses and risks and in such amounts as, in the Company's judgment, are prudent and customary in the businesses in which they are engaged; neither the Company nor its subsidiaries has been refused any insurance coverage sought or applied for; and neither the Company nor its subsidiaries has any reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business at a cost that would not reasonably be expected to have a material adverse effect on the Company and its subsidiaries, taken as a whole, except as described in the Prospectus.

(xxvi) *No Labor Dispute*. No material labor dispute with the employees of the Company or its subsidiaries exists, except as described in the Prospectus, or, to the knowledge of the Company, is imminent; and the Company is not aware of any existing, threatened or imminent labor disturbance by the employees of any of its principal suppliers, manufacturers or contractors that could have a material adverse effect on the Company and any of its subsidiaries, taken as a whole.

(xxvii) *Environmental Laws*. The Company and each of its subsidiaries (A) are in compliance with any and all applicable foreign, federal, state and local laws and regulations relating to the protection of human health and safety, the environment or hazardous or toxic substances or wastes, pollutants or contaminants ("*Environmental Laws*"), (B) have received all permits, licenses or other approvals required of them under applicable Environmental Laws to conduct their respective businesses and (C) are in compliance with all terms and conditions of any such permit, license or approval, except where such noncompliance with Environmental Laws, failure to receive required permits, licenses or other approvals or failure to comply with the terms and conditions of such permits, licenses or approvals would not, singly or in the aggregate, reasonably be expected to have a material adverse effect on the Company and its subsidiaries, taken as a whole. There are no costs or liabilities associated with Environmental Laws (including, without limitation, any capital or operating expenditures required for clean-up, closure of properties or compliance with Environmental Laws or any permit, license or approval, any related constraints on operating activities and any potential liabilities to third parties) which would, singly or in the aggregate, reasonably be expected have a material adverse effect on the Company and its subsidiaries, taken as a whole.

(xxviii) *Taxes*. The Company and its subsidiaries have filed all federal, state, local and foreign tax returns required to be filed through the date of this Agreement or have requested extensions thereof (except where the failure to file would not, individually or in the aggregate, reasonably be expected to have a material adverse effect) and have paid all taxes required to be paid thereon (except for cases in which the failure to file or pay would not reasonably be expected to have a material adverse effect, or, except as currently being contested in good faith and for which reserves required by GAAP have been created in the financial statements of the Company), and, except as set forth in the Prospectus, no tax deficiency has been determined adversely to the Company or its subsidiaries which has had (nor does the Company nor its subsidiaries have any notice or knowledge of any tax deficiency which would reasonably be expected to be determined adversely to the Company or its subsidiaries and which would reasonably be expected to have) a material adverse effect.

(xxix) *ERISA Compliance*. Except (A) as described in the Prospectus or (B) as would not, singly or in the aggregate, reasonably be expected to have a material adverse effect on the Company and its subsidiaries, taken as a whole, each employee benefit plan, within the meaning of Section 3(3) of the Employee Retirement Income Security Act of 1974, as amended (“**ERISA**”), that the Company or any member of its “Controlled Group” (defined as any organization which is under common control with the Company within the meaning of Section 414 of the Internal Revenue Code of 1986, as amended (the “**Code**”)) sponsors or maintains has been maintained, in all material respects, in compliance with its terms and the requirements of any applicable statutes, orders, rules and regulations, including but not limited to ERISA and the Code.

(xxx) *Not an Investment Company*. The Company is not, and after giving effect to the offering and sale of the Shares and the application of the proceeds thereof as described in the Prospectus will not be, required to register as an “investment company” as such term is defined in the Investment Company Act of 1940, as amended.

(xxxii) *Registration Rights*. Except as described in the Prospectus, there are no contracts, agreements or understandings between the Company and any person granting such person the right to require the Company to file a registration statement under the Securities Act with respect to any securities of the Company or to require the Company to include such securities with the Shares registered pursuant to the Registration Statement; all such rights have been validly waived or complied with in connection with the issuance and sales of the Shares contemplated hereby.

(xxxiii) *No Unlawful Payments*. (A) None of the Company, its subsidiaries or the Company’s controlled affiliates, or any director, officer or, to the Company’s knowledge, any agent, representative or employee of the Company, its subsidiaries or the Company’s controlled affiliates, has taken or will take any action in furtherance of an offer, payment, promise to pay, or authorization or approval of the payment, giving or receipt of money, property, gifts or anything else of value, directly or indirectly, to any government official (including any officer or employee of a government or government-owned or controlled entity or of a public international organization, or any person acting in an official capacity for or on behalf of any of the foregoing, or any political party or party official or candidate for political office) in order to improperly influence official action, or to any person in violation of any applicable anti-corruption laws; (B) the Company, the subsidiaries and the Company’s controlled affiliates have conducted their businesses in compliance with applicable anti-corruption laws and have instituted and maintained and will continue to maintain policies and procedures reasonably designed to promote and achieve compliance with such laws and with the representations and warranties contained herein; and (C) neither the Company nor its subsidiaries will use, directly or indirectly, the proceeds of the offering in furtherance of an offer, payment, promise to pay, or authorization of the payment or giving of money, or anything else of value, to any person in violation of any applicable anti-corruption laws.

(xxxiiii) *Anti-Money Laundering Compliance*. The operations of the Company and its subsidiaries are and have been conducted at all times, in all material respects, in compliance with applicable financial recordkeeping and reporting requirements, including those of the Bank Secrecy Act, as amended by Title III of the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001 (USA PATRIOT Act), and the applicable anti-money laundering statutes of jurisdictions where the Company or its subsidiaries conduct business, the rules and regulations thereunder and any related or similar rules, regulations or guidelines, issued, administered or enforced by any governmental agency having jurisdiction over the Company or its subsidiaries (collectively, the “**Anti-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 its subsidiaries with respect to the Anti-Money Laundering Laws is pending or, to the knowledge of the Company, threatened.

(xxxiv) OFAC.

(A) None of the Company, its subsidiaries or any director, officer, or employee thereof, or, to the Company's knowledge, any agent, affiliate or representative of the Company or its subsidiaries, is an individual or entity ("**Person**") that is, or is owned or controlled by one or more Persons that are:

(i) the subject of any sanctions administered or enforced by the U.S. Department of Treasury's Office of Foreign Assets Control, the United Nations Security Council, the European Union, Her Majesty's Treasury, or other relevant sanctions authority (collectively, "**Sanctions**"), or

(ii) located, organized or resident in a country or territory that is the subject of Sanctions (including, without limitation, Crimea, Cuba, Iran, North Korea, Russia and Syria).

(B) The Company will not, directly or indirectly, use the proceeds of the offering of the Shares, or lend, contribute or otherwise make available such proceeds to any subsidiary, joint venture partner or other Person:

(i) to fund or facilitate any activities or business of or with any Person or in any country or territory that, at the time of such funding or facilitation, is the subject of Sanctions; or

(ii) in any other manner that will result in a violation of Sanctions by any Person (including any Person participating in the offering of the Shares, whether as underwriter, advisor, investor or otherwise).

(C) The Company and its subsidiaries have not knowingly engaged in, are not now knowingly engaged in, and will not engage in, any dealings or transactions with any Person, or in any country or territory, that at the time of the dealing or transaction is or was the subject of Sanctions.

(xxxv) *No Immunity*. Neither the Company nor any of its subsidiaries, nor any of their respective properties or assets, has any immunity from the jurisdiction of any court or from any legal process (whether through service or notice, attachment to prior judgment, attachment in aid of execution or otherwise) under the laws of any jurisdiction in which it is organized, headquartered or doing business.

(xxxvi) *No Legal, Accounting or Tax Advice*. The Company has not relied upon the Agent or legal counsel for the Agent for any legal, tax or accounting advice in connection with the offering and sale of the Shares.

(xxxvii) *Certificate as Representation and Warranty.* Any certificate signed by any officer of the Company and delivered to the Agent or the Agent's counsel in connection with the offering of the Shares shall be deemed a representation and warranty by the Company to the Agent as to the matters covered thereby on the date of such certificate.

(xxxviii) *Compliance with Data Privacy Laws.* The Company and each of its subsidiaries have complied and are presently in compliance with all internal and external privacy policies, contractual obligations, industry standards, applicable laws, statutes, judgments, orders, rules and regulations of any court or arbitrator or other governmental or regulatory authority with jurisdiction over the Company, in each case, relating to the collection, use, transfer, import, export, storage, protection, disposal and disclosure by the Company or any of its subsidiaries of personal, personally identifiable, household, sensitive, confidential or regulated data ("**Data Security Obligations**", and such data, "**Confidential Data**"). The Company has not received any notification of or complaint regarding and is unaware of any other facts that, individually or in the aggregate, would reasonably indicate material non-compliance with any Data Security Obligation; and there is no action, suit or proceeding by or before any court or governmental agency, authority or body pending or, to the Company's knowledge, threatened alleging material non-compliance with any Data Security Obligation.

(xxxix) *Cybersecurity.* The Company and its subsidiaries' information technology assets and equipment, computers, systems, networks, hardware, software, websites, applications and databases used to process, store, maintain and operate data, information and functions are adequate for, and operate and perform in all material respects as required in connection with, the operation of the business of the Company and the subsidiaries as currently conducted. The Company and its subsidiaries have taken all reasonable technical and organizational measures to protect the information technology systems and Confidential Data used in connection with the operation of the Company's and its subsidiaries' businesses. Without limiting the foregoing, the Company and its subsidiaries have used reasonable efforts to establish and maintain, and have established, maintained, implemented and complied with, reasonable information technology, information security, cyber security and data protection controls, policies and procedures, including oversight, access controls, encryption, technological and physical safeguards and business continuity/disaster recovery and security plans that are designed to protect against and prevent breach, destruction, loss, unauthorized distribution, use, access, disablement, misappropriation or modification, or other compromise or misuse of or relating to any information technology system or Confidential Data used in connection with the operation of the Company's and its subsidiaries' businesses ("**Breach**"). Except as disclosed in the Prospectus, there has been no material Breach, and the Company and its subsidiaries have not been notified of, and have no knowledge of any event or condition that would reasonably be expected to result in, any material Breach.

## **2. Purchase, Sale and Delivery of Shares.**

(a) *At-the-Market Sales.* 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 through the Agent as sales agent, and the Agent agrees to use its commercially reasonable efforts to sell for and on behalf of the Company, the Shares on the following terms and conditions; *provided, however*, that any obligation of the Agent to use such commercially reasonable efforts shall be subject to the continuing accuracy of the representations and warranties of the Company herein, the performance by the Company of its covenants and obligations hereunder and the continuing satisfaction of the additional conditions specified in Section 4 of this Agreement. The Company acknowledges and agrees that (i) there can be no assurance that the Agent will be successful in selling Shares, and (ii) the Agent will incur no liability or obligation to the Company or any other person or entity if it does not sell Shares for any reason other than a failure by the Agent to use its commercially reasonable efforts consistent with its normal trading and sales practices to sell such Shares as required under this Section 2.

(i) Each time that the Company wishes to issue and sell the Shares hereunder (each, a “**Placement**”), it will notify the Agent by email notice (or other method mutually agreed to in writing by the parties) (a “**Placement Notice**”) containing the parameters in accordance with which it desires the Shares to be sold, which shall at a minimum include the number of shares of Shares to be issued, the time period during which sales are requested to be made, any limitation on the number of Shares that may be sold in any one Trading Day (as defined below) and any minimum price below which sales may not be made, a form of which containing such minimum sales parameters necessary is attached hereto as Schedule 1. The Placement Notice shall originate from any of the individuals from the Company set forth on Schedule 2 (with a copy to each of the other individuals from the Company listed on such schedule), and shall be addressed to each of the individuals from the Agent set forth on Schedule 2, as such Schedule 2 may be amended from time to time. The Placement Notice shall be effective upon receipt by the Agent unless and until (i) in accordance with the notice requirements set forth in Section 2(a)(iii) of this Agreement, the Agent declines to accept the terms contained therein for any reason, in its sole discretion, (ii) the entire amount of the Shares have been sold, (iii) the Company suspends or terminates the Placement Notice in accordance with the notice requirements set forth in Section 2(a)(iii) below, (iv) the Company issues a subsequent Placement Notice with parameters superseding those on the earlier dated Placement Notice, or (v) this Agreement has been terminated under the provisions of Section 7. The amount of any commission or other compensation to be paid by the Company to the Agent in connection with the sale of the Shares shall be calculated in accordance with the terms set forth in Section 2(a)(v) below. It is expressly acknowledged and agreed that neither the Company nor the Agent will have any obligation whatsoever with respect to a Placement or any Shares unless and until the Company delivers a Placement Notice to the Agent and the Agent does not decline such Placement Notice pursuant to the terms set forth above, and then only upon the terms specified therein and herein. In the event of a conflict between the terms of this Agreement and the terms of the Placement Notice, the terms of the Placement Notice will control. For the purposes hereof, “**Trading Day**” means any day on which the Company’s Common Stock is purchased and sold on the principal market on which the Common Stock is listed or quoted.

(ii) The Shares are to be sold by the Agent on a daily basis or otherwise as shall be agreed to by the Company and the Agent on any day that is a trading day for the Exchange (other than a day on which the Exchange is scheduled to close prior to its regular weekday closing time). The gross sales price of the Shares sold under this Section 2(a) shall be the market price for the Company’s Common Stock sold by the Agent under this Section 2(a) at the time of such sale.

(iii) Notwithstanding the foregoing, the Company may instruct the Agent by telephone (confirmed promptly by email) not to sell the Shares if such sales cannot be effected at or above the price designated by the Company in any such instruction. Furthermore, the Company shall not authorize the issuance and sale of, and the Agent shall not be obligated to use its commercially reasonable efforts to sell, any Share at a price lower than the minimum price therefor designated from time to time by the Company’s Board of Directors or a duly authorized committee thereof and notified to the Agent in writing. In addition, the Company or the Agent may, upon notice to the other party hereto by telephone (confirmed promptly by email), suspend the offering of the Shares, whereupon the Agent shall so suspend the offering of Shares until further notice is provided to the other party to the contrary; *provided, however*, that such suspension or termination shall not affect or impair the parties’ respective obligations with respect to the Shares sold

hereunder prior to the giving of such notice. Notwithstanding any other provision of this Agreement, during any period in which the Company is in possession of material non-public information, the Company and the Agent agree that (i) no sale of Shares will take place, (ii) the Company shall not request the sale of any Shares, and (iii) the Agent shall not be obligated to sell or offer to sell any Shares.

(iv) Subject to the terms of the Placement Notice, the Agent may sell the Shares by any method permitted by law and deemed to be an “at the market offering” as defined in Rule 415(a)(4) under the Securities Act, including (i) sales made directly on or through an Exchange; (ii) in privately negotiated transactions; (iii) as block transactions; or (iv) by any other method permitted by law and deemed to be an “at the market offering” as defined in Rule 415(a)(4) under the Securities Act, in each case, subject to the prior written consent of the Company.

(v) The compensation to the Agent for sales of the Shares, as an agent of the Company, shall be 3.0% of the gross sales price of the Shares sold pursuant to this Section 2(a), payable in cash (the “**Sales Commission**”); *provided that* the combined Sales Commission and reimbursement of the Agent for its out-of-pocket expenses pursuant to Section 3(g), including reasonable fees and disbursements of the Agent’s counsel, shall not exceed 8.0% of the gross sales price of the Shares. The remaining proceeds, after further deduction for any transaction fees imposed by any governmental or self-regulatory organization in respect of such sales, and reimbursement of expenses that the Agent may be entitled to pursuant to Section 3(g), shall constitute the net proceeds to the Company for such Shares (the “**Net Proceeds**”).

(vi) The Agent will provide written confirmation to the Company (including by email correspondence to each of the individuals of the Company set forth on Schedule 2), no later than the opening of the Trading Day immediately following the Trading Day on which it has made sales of Shares hereunder, setting forth the number of Shares sold on such day, the volume-weighted average price of the Shares sold, the Net Proceeds payable to the Company and the compensation payable by the Company to the Agent with respect to such sales.

(vii) All Shares sold pursuant to this Section 2(a) will be delivered by the Company to the Agent for the account of the Agent, against payment of the Net Proceeds therefor, by wire transfer of same-day funds payable to the order of the Company at the offices of Piper Sandler & Co., U.S. Bancorp Center, 800 Nicollet Mall, Minneapolis, Minnesota 55402, or such other location as may be mutually acceptable, at 9:00 a.m. Central Time on the second full business day following the date on which such Shares are sold, or at such other time and date as the Agent and the Company determine pursuant to Rule 15c6-1(a) under the Exchange Act, each such time and date of delivery being herein referred to as a “**Settlement Date**.” If the Agent so elects, delivery of the Shares may be made by credit through full fast transfer to an account or accounts at The Depository Trust Company designated by the Agent. On each Settlement Date, the Agent will deliver the Net Proceeds in same day funds to an account designated by the Company on, or prior to, such Settlement Date. The Company agrees that if the Company, or its transfer agent (if applicable), defaults in its obligation to timely deliver duly authorized Shares on a Settlement Date through no fault of the Agent, the Company agrees that in addition to and in no way limiting the rights and obligations set forth in Section 5 hereto, it will (i) hold the Agent harmless against any loss, claim, damage, or expense (including reasonable and documented legal fees and expenses), as incurred, arising out of or in connection with such default by the Company, (ii) reimburse the Agent for any losses incurred by the Agent attributable, directly or indirectly, to such default and (iii) pay to the Agent any commission or other compensation to which the Agent would otherwise have been entitled absent such default.



(b) *Maximum Amount.* Under no circumstances shall the aggregate number or aggregate value of the Shares sold pursuant to this Agreement exceed: (i) the aggregate number and aggregate dollar amount of shares of Common Stock available for issuance under the Registration Statement (including any limit set forth in General Instruction I.B.6 thereof, if applicable), (ii) the aggregate number of authorized but unissued shares of Common Stock that are available for issuance under the Company's certificate of incorporation or (iii) the aggregate number or aggregate dollar amount of shares of Common Stock for which the Company has filed any Prospectus or prospectus supplement in connection with the Shares (the lesser of (i), (ii), (iii) and (iv) (the "**Maximum Amount**").

(c) *No Association or Partnership.* Nothing herein contained shall constitute the Agent as an unincorporated association or partner with the Company.

(d) *Duration.* Under no circumstances shall any Shares be sold pursuant to this Agreement after the date which is three years after the Registration Statement is first declared effective by the Commission.

(e) *Market Transactions by Agent.* The Company acknowledges and agrees that the Agent has informed the Company that the Agent may, to the extent permitted under the Securities Act, the Exchange Act and this Agreement, purchase and sell shares of Common Stock for its own account while this Agreement is in effect, *provided, that* (i) no sale for its own account shall take place while a Placement Notice is in effect (except to the extent the Agent may engage in sales of Shares purchased or deemed purchased from the Company as a "riskless principal" or in a similar capacity) and (ii) the Company shall not be deemed to have authorized or consented to any such purchases or sales by the Agent. The Company consents to the Agent trading in the Common Stock for the account of any of its clients at the same time as sales of the Shares occur pursuant to this Agreement.

**3. Covenants of the Company.** The Company covenants and agrees with the Agent as follows:

(a) *Amendments to Registration Statement and Prospectus.* After the date of this Agreement and during any period in which a Prospectus relating to any Shares is required to be delivered by the Agent under the Securities Act (including in circumstances where such requirement may be satisfied pursuant to Rule 172 under the Securities Act), the Company agrees that it will: (i) notify the Agent promptly of the time when any subsequent amendment to the Registration Statement, other than documents incorporated by reference or amendments not related to the Shares, has been filed with the Commission and/or has become effective or any subsequent supplement to the Prospectus related to the Shares has been filed and of any request by the Commission for any amendment or supplement to the Registration Statement (insofar as it relates to the transactions contemplated hereby) or Prospectus or for additional information; (ii) prepare and file with the Commission, promptly upon the Agent's request, any amendments or supplements to the Registration Statement or Prospectus that, in the Agent's reasonable opinion, may be necessary or advisable in connection with the sale of the Shares by the Agent (*provided, however*, that the failure of the Agent to make such request shall not relieve the Company of any obligation or liability hereunder, or affect the Agent's right to rely on the representations and warranties made by the Company in this Agreement); (iii) not file any amendment or supplement to the Registration Statement or Prospectus, other than documents incorporated by reference, relating to the Shares or a security convertible into the Shares unless a copy thereof has been submitted to the Agent within a reasonable period of time before the filing and the Agent has not reasonably objected thereto (*provided, however*, that (A) the failure of the Agent to make such objection shall not relieve the Company of any obligation or liability hereunder, or affect the Agent's right to rely on the representations and warranties made by the Company in this Agreement), (B) the Company has no obligation to provide the Agent any advance copy of such filing or

to provide the Agent an opportunity to object to such filing if the filing does not name the Agent or does not relate to a Placement or other transaction contemplated hereunder, and (C) the only remedy that the Agent shall have with respect to the failure by the Company to provide the Agent with such copy or the filing of such amendment or supplement despite the Agent's objection shall be to cease making sales under this Agreement); (iv) furnish to the Agent at the time of filing thereof a copy of any document that upon filing is deemed to be incorporated by reference into the Registration Statement or Prospectus, except for those documents available via EDGAR; and (v) cause each amendment or supplement to the Prospectus, other than documents incorporated by reference, to be filed with the Commission as required pursuant to the applicable paragraph of Rule 424(b) of the Securities Act. Notwithstanding the foregoing, in the alternative the Company may suspend or terminate the pending Placement Notice, upon written notice to the Agent and delay the filing of any amendment or supplement, if in the judgment of the Company, it is in the best interest of the Company; provided that if such suspension or termination of the pending Placement Notice shall occur prior to the Settlement Date for any sale of Shares, such Shares shall settle in accordance with the provisions of this Agreement.

(b) *Stop Order.* The Company will advise the Agent, promptly after it receives notice or obtains knowledge thereof, of the issuance or threatened issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement, of the suspension of the qualification of the Shares for offering or sale in any jurisdiction, or of the initiation or threatening of any proceeding for any such purpose, and it will promptly use its commercially reasonable efforts to prevent the issuance of any stop order or to obtain its withdrawal if such a stop order should be issued.

(c) *Continuing Amendments.* During any period in which a Prospectus relating to the Shares is required to be delivered by the Agent under the Securities Act with respect to any Placement or pending sale of the Shares, (including in circumstances where such requirement may be satisfied pursuant to Rule 172 under the Securities Act), the Company will comply with all requirements imposed upon it by the Securities Act, as from time to time in force, and to file on or before their respective due dates all reports (taking into account any extensions available under the Exchange Act) and any definitive proxy or information statements required to be filed by the Company with the Commission pursuant to Sections 13(a), 13(c), 14, 15(d) or any other provision of or under the Exchange Act. If during such period any event occurs as a result of which the Prospectus as then amended or supplemented 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 or supplement the Registration Statement or Prospectus to comply with the Securities Act, the Company will promptly notify the Agent to suspend the offering of Shares during such period and the Company will promptly amend or supplement the Registration Statement or Prospectus (at the expense of the Company) so as to correct such statement or omission or effect such compliance (it being acknowledged that the Company may delay the filing of any amendment or supplement, if, in the judgment of the Company, it is in the best interest of the Company); provided that if such suspension shall occur prior to the Settlement Date for any sale of Shares, such Shares shall settle in accordance with the provisions of this Agreement.

(d) *Qualification of the Shares.* The Company shall take or cause to be taken all necessary action to qualify the Shares for sale under the securities laws of such jurisdictions in the United States as the Agent reasonably designates and to continue such qualifications in effect so long as required for the distribution of the Shares, 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. The Company shall promptly advise the Agent of the receipt by the Company of any notification with respect to the suspension of the qualification of the Shares for offer or sale in any jurisdiction or the initiation or threatening of any proceeding for such purpose.

(e) *Copies of Registration Statement and Prospectus.* The Company will furnish to the Agent and counsel for the Agent copies of the Registration Statement, the Prospectus and all amendments and supplements to such documents, in each case as soon as available and in such quantities as the Agent may from time to time reasonably request.

(f) *Section 11(a).* The Company will make generally available to its security holders as soon as practicable an earnings statement (which need not be audited) covering a 12-month period that shall satisfy the provisions of Section 11(a) of the Securities Act and Rule 158 promulgated thereunder; *provided* that the Company will be deemed to have furnished such statement to its security holders to the extent it is filed on EDGAR or any successor system.

(g) *Expenses.* The Company, whether or not the transactions contemplated hereunder are consummated or this Agreement is terminated, will pay or cause to be paid (i) all expenses (including stock or transfer taxes and stamp or similar duties allocated to the respective transferees) incurred in connection with the registration, issue, sale and delivery of the Shares, (ii) all expenses and fees (including, without limitation, fees and expenses of the Company's accountants and counsel) in connection with the preparation, printing, filing, delivery, and shipping of the Registration Statement (including the financial statements therein and all amendments, schedules, and exhibits thereto), the Shares, the Prospectus and any amendment thereof or supplement thereto, and the producing, word-processing, printing, delivery, and shipping of this Agreement and other underwriting documents or closing documents, including Blue Sky memoranda (covering the states and other applicable jurisdictions) and including the cost to furnish copies of each thereof to the Agent, (iii) all filing fees, (iv) the reasonable and documented fees and disbursements of the Agent's counsel incurred in connection with the qualification of the Shares for offering and sale by the Agent or by dealers under the securities or blue sky laws of the states and other jurisdictions which the Agent shall designate, (v) the fees and expenses of any transfer agent or registrar, (vi) the filing fees and reasonable and documented fees and disbursements of the Agent's counsel incident to any required review and approval by FINRA of the terms of the sale of the Shares, (vii) listing fees, if any, (viii) the cost and expenses of the Company relating to investor presentations or any "roadshow" undertaken in connection with marketing of the Shares, and (ix) all other reasonable costs and expenses incident to the performance of its obligations hereunder that are not otherwise specifically provided for herein. In addition to (iv) and (vi) above, the Company shall reimburse the Agent for its out-of-pocket expenses, including reasonable fees and disbursements of the Agent's counsel in connection with this Agreement, the Registration Statement, the Prospectus and ongoing services in connection with the transactions contemplated hereunder, in an amount which, taken together with the fees and disbursement of Agent's counsel under clause (iv) of this paragraph, shall not exceed \$50,000.

(h) *Use of Proceeds.* The Company will apply the net proceeds from the sale of the Shares in the manner described in the Prospectus.

(i) *Restrictions on Future Sales.* Unless a waiver applies under section 3(o) hereof, without the written consent of the Agent, during the period beginning on the third Trading Day immediately prior to the date on which any Placement Notice is delivered to the Agent hereunder and ending on the third Trading Day immediately following the earlier of (x) the Settlement Date with respect to Shares sold pursuant to such Placement Notice and (y) the termination or suspension by the Company of such Placement Notice, the Company will not, offer for sale, sell, contract to sell, pledge, grant any option for the sale of, enter into any transaction which is designed to, or might reasonably be expected to, result in the disposition of Common Stock (whether by actual disposition or effective economic disposition due to cash settlement or otherwise) by the Company or any affiliate, or otherwise issue or dispose of, directly or indirectly (or publicly disclose the intention to make any such offer, sale, pledge, grant, issuance or other disposition), any Common Stock or any securities convertible into or exchangeable for, or any options or rights to purchase or acquire, Common Stock, or permit the registration under the Securities Act of any Common Stock, such securities,

options or rights, except for: (i) the registration of the Shares and the sales through the Agent pursuant to this Agreement, (ii) the issuance or sale of shares through any dividend reinvestment and stock purchase plan of the Company described in or incorporated by reference in the Registration Statement and Prospectus, (iii) issuance or sale of shares of restricted stock, restricted stock units, options and other equity awards granted pursuant to any employee or director share option, incentive or benefit plan, long-term incentive plan, inducement award under Nasdaq rules or other compensation plan of the Company, whether now in effect or hereafter implemented, disclosed in filings by the Company available on EDGAR or any successor system (or, in the case of an inducement award under Nasdaq rules, disclosed by press release) and incorporated by reference in the Registration Statement and Prospectus, and the Common Stock issuable upon the exercise of such outstanding options or vesting of such restricted stock units, (iv) the issuance of shares pursuant to the exercise of warrants (v) the filing of registration statements on Form S-8, (vi) sales of shares of Common Stock or securities convertible into or exchangeable for shares of Common Stock as consideration for mergers, acquisitions, other business combinations, joint ventures or strategic alliances, marketing or distribution arrangements, collaboration agreements, co-promotion agreements or intellectual property license agreements occurring after the date of this Agreement which are not for the primary purpose of capital raising, and (vii) modification of any outstanding options, warrants or any rights to purchase or acquire shares of Common Stock.

(j) *No Stabilization or Manipulation.* The Company has not 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 constitutes: (i) the stabilization or manipulation of the price of the Common Stock or any other security of the Company to facilitate the sale or resale of the Shares, (ii) a violation of Regulation M. The Company shall notify the Agent of any violation of Regulation M by the Company or any of its subsidiaries or any of their respective officers or directors promptly after the Company has received notice or obtained knowledge of any such violation. The Company shall not invest in futures contracts, options on futures contracts or options on commodities, unless the Company is exempt from the registration requirements of the Commodity Exchange Act, as amended (the “**Commodity Act**”), or otherwise complies with the Commodity Act. The Company will not engage in any activities bearing on the Commodity Act, unless such activities are exempt from the Commodity Act or otherwise comply with the Commodity Act.

(k) *No Other Broker.* 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.

(l) *Timely Securities Act and Exchange Act Reports.* During any prospectus delivery period, the Company will use its commercially reasonable efforts to file on a timely basis with the Commission such periodic and special reports as required by the Securities Act and the Exchange Act.

(m) *Internal Controls.* The Company and its subsidiaries 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, including its subsidiaries, is made known to them by others within those entities.

(n) *Permitted Free Writing Prospectus*. The Company represents and agrees that, unless it obtains the prior written consent of the Agent, and the Agent severally represents and agrees that, unless it obtains the prior written consent of the Company, it has not made and will not make any offer relating to the Shares that would constitute an “issuer free writing prospectus,” as defined in Rule 433 under the Securities Act, or that would otherwise constitute a “free writing prospectus,” as defined in Rule 405 under the Securities Act, required to be filed with the Commission. Any such free writing prospectus consented to by the Company and the Agent 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 Rule 433 applicable to any Permitted Free Writing Prospectus, including timely Commission filing where required, legending and record keeping.

(o) *Representation Date and Opinions of Counsel*. On or prior to the date of the first Placement Notice, and thereafter during the term of this Agreement, each time the Company (A) files an amendment to the Registration Statement or Prospectus (other than relating solely to the offering of securities other than the Shares), (B) files an annual report on Form 10-K under the Exchange Act or files its quarterly reports on Form 10-Q under the Exchange Act; and (C) files a report on Form 8-K containing amended financial statements (other than an earnings release or other information “furnished” pursuant to Item 2.02 or 7.01 of Form 8-K) under the Exchange Act, (each of the dates in (A), (B) and (C) are referred to herein as a “**Representation Date**”), the Company shall cause:

(i) Goodwin Procter LLP, counsel for the Company, to furnish to the Agent the opinion and negative assurance letter of such counsel, dated as of such date and addressed to the Agent, in the form reasonably satisfactory to the Agent (in the case of the first Placement Notice), and, in the case of any subsequent Representation Date with respect to which the Company is obligated to deliver an opinion pursuant to this Section 3(o) for which no waiver is applicable, such counsel shall furnish to the Agent only a negative assurance letter, dated as of such date and addressed to the Agent, in the form reasonably satisfactory to the Agent.

(ii) Goodwin Procter LLP, intellectual property and patent counsel for the Company, to furnish to the Agent the opinion of such counsel, dated as of such date and addressed to the Agent, in form and substance reasonably satisfactory to the Agent; provided however, the opinion of counsel shall only be required for the first Settlement Date.

Notwithstanding the foregoing, (i) the Company shall be required to furnish no more than one opinion pursuant to Section 3(o)(i) above per annual report on Form 10-K and quarterly report on Form 10-Q filed by the Company, and (ii) the requirement to provide counsel opinions under this Section 3(o) shall be automatically waived for any Representation Date occurring at a time at which no Placement Notice is pending, which waiver shall continue until the date the Company delivers a Placement Notice to the Agent. Notwithstanding the foregoing, if the Company subsequently decides to sell Shares following a Representation Date when the Company relied on such waiver and did not provide the Agent with opinions under this Section 3(o), then before the Agent sells any Shares pursuant to Section 2(a), the Company shall cause the opinions, comfort letter, certificates and documents that would be delivered on a Representation Date to be delivered.

(p) *Representation Date and Comfort Letter*. On or prior to the date of the first Placement Notice and thereafter during the term of this Agreement, on each Representation Date to which a waiver does not apply, the Company shall cause Ernst & Young LLP, or other independent accountants satisfactory to the Agent (the “**Accountants**”), to deliver to the Agent a letter, dated as of such date and addressed to the Agent, (i) confirming that they are independent public accountants within the meaning of the Securities Act and are in

compliance with the applicable requirements relating to the qualifications of accountants under Rule 2-01 of Regulation S-X of the Commission, and (ii) stating the conclusions and findings of said firm with respect to the financial information and other matters covered by its letter in form and substance satisfactory to the Agent of the same tenor as the first such letter received hereunder; provided that the Company shall be required to furnish no more than one comfort letter hereunder per annual report on Form 10-K and quarterly report on Form 10-Q filed by the Company.

(q) *Representation Date and Representation Certificate.* On or prior to the date of the first Placement Notice and thereafter during the term of this Agreement, on each Representation Date to which a waiver does not apply, the Company shall furnish to the Agent a certificate (the "**Representation Certificate**"), substantially in the form of Schedule 3 hereto and dated as of such date, addressed to the Agent and signed by any of the chief executive officer, the chief financial officer or chief operating officer of the Company.

(r) *Disclosure of Shares Sold.* The Company shall disclose in its quarterly reports on Form 10-Q and in its annual report on Form 10-K the number of the Shares sold through the Agent under this Agreement, and the net proceeds to the Company with respect to sales of the Shares pursuant to this Agreement during the relevant quarter.

(s) *Continued Listing of Shares.* The Company shall use its commercially reasonable efforts to maintain the listing of the Common Stock on the Exchange.

(t) *Maximum Amount.* The Company will not instruct the Agent to sell or otherwise attempt to sell Shares pursuant to this Agreement in excess of the Maximum Amount.

(u) *Notice of Changes.* At any time prior to tendering a Placement Notice for a sale of Shares hereunder, the Company shall advise the Agent immediately after it shall have received notice or obtain knowledge thereof, of any information or fact that would alter or affect in any material respect any opinion, certificate, letter and other document provided to the Agent pursuant to this Section 3.

**4. Conditions of Agent's Obligations.** The obligations of the Agent hereunder are subject to (i) the accuracy, as of the date of this Agreement, each Representation Date, each Notice Date, each Applicable Time, and each Settlement Date (in each case, as if made at such date) of and compliance with all representations, warranties and agreements of the Company contained herein, (ii) the performance by the Company of its obligations hereunder and (iii) the following additional conditions:

(a) *Continuing Amendments; No Stop Order.* If filing of the Prospectus, or any amendment or supplement thereto, or any Permitted Free Writing Prospectus, is required under the Securities Act, the Company shall have filed the Prospectus (or such amendment or supplement) or such Permitted Free Writing Prospectus with the Commission in the manner and within the time period so required (without reliance on Rule 424(b)(8) or Rule 164(b) under the Securities Act); the Registration Statement shall be effective; no stop order suspending the effectiveness of the Registration Statement or any part thereof, any registration statement filed pursuant to Rule 462(b) under the Securities Act, or any amendment thereof, nor suspending or preventing the use of the 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 Prospectus or otherwise) shall have been complied with to the Agent's reasonable satisfaction.

(b) *Absence of Certain Events.* None of the following events shall have occurred and be continuing: (i) receipt by the Company or any of its subsidiaries of any request for additional information from the Commission or any other federal or state governmental authority during the period of effectiveness of the Registration Statement, the response to which would require any post-effective amendments or supplements to the Registration Statement or the Prospectus which have not been made; (ii) the issuance by the Commission or any other federal or state governmental authority of any stop order suspending the effectiveness of the Registration Statement or the initiation of any proceedings for that purpose; (iii) receipt by the Company of any notification with respect to the suspension of the qualification or exemption from qualification of any of the Shares for sale in any jurisdiction or the initiation or threatening of any proceeding for such purpose; (iv) the occurrence of any event that makes any material statement made in the Registration Statement or the Prospectus or any material document incorporated or deemed to be incorporated therein by reference untrue in any material respect or that requires the making of any changes in the Registration Statement, related Prospectus or such documents so that, in the case of the Registration Statement, it will not contain any materially 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, that in the case of the Prospectus, it will not contain any materially 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, in the light of the circumstances under which they were made, not misleading.

(c) *No Material Misstatement or Omission.* The Agent shall not have advised the Company that the Registration Statement or the Prospectus, contains an untrue statement of fact which, in the Agent's reasonable opinion, is material, or omits to state a fact which, in the Agent's reasonable opinion, is material and is required to be stated therein or necessary to make the statements therein not misleading.

(d) *No Adverse Changes.* Except as contemplated in the Prospectus, subsequent to the respective dates as of which information is given in the Prospectus, neither the Company nor any of its subsidiaries shall have incurred any material liabilities or obligations, direct or contingent, or entered into any material transactions, or declared or paid any dividends or made any distribution of any kind with respect to its capital stock; and there shall not have been any material change in the Company's capital stock (other than a change in the number of outstanding shares of Common Stock due to the issuance of shares of Common Stock upon the exercise of outstanding options or warrants), or any material change in the short-term or long-term debt of the Company, or any issuance of options, warrants, convertible securities or other rights to purchase the capital stock of the Company or any of its subsidiaries, or any development involving a prospective Material Adverse Effect (whether or not arising in the ordinary course of business), or any loss by strike, fire, flood, earthquake, accident or other calamity, whether or not covered by insurance, incurred by the Company or any of its subsidiaries, the effect of which, in any such case described above, in the Agent's judgment, makes it impractical or inadvisable to offer or deliver the Shares on the terms and in the manner contemplated in the Prospectus.

(e) *Compliance with Certain Obligations.* The Company shall have performed each of its obligations under Section 3(o) through 3(q) of this Agreement.

(f) *Opinion of Agent Counsel.* On each Representation Date to which a waiver does not apply, there shall have been furnished to the Agent the opinion and negative assurance letter of Ropes & Gray LLP, counsel for the Agent, dated as of such Representation Date and addressed to the Agent, in a form reasonably satisfactory to the Agent, and such counsel shall have received such papers and information as they request to enable them to pass upon such matters; provided however, the opinion of Ropes & Gray LLP shall only be required prior to the first Placement Notice, and thereafter, only a negative assurance letter of such counsel shall be required for each subsequent Representation Date.

(g) *Representation Certificate.* On or prior to the first Placement Notice, the Agent shall have received the Representation Certificate.

(h) *No Objection by FINRA*. FINRA shall have raised no objection to the fairness and reasonableness of the underwriting terms and arrangements.

(i) *Timely Filing of Prospectus and Prospectus Supplement*. All filings with the Commission required by Rule 424 under the Securities Act to have been filed by the Settlement Date, as the case may be, shall have been made within the applicable time period prescribed for such filing by Rule 424 under the Securities Act.

(j) *Additional Documents and Certificates*. The Company shall have furnished to the Agent and the Agent's counsel such additional documents, certificates and evidence as they may have reasonably requested.

All opinions, certificates, letters and other documents described in this Section 4 will be in compliance with the provisions hereof only if they are reasonably satisfactory in form and substance to the Agent and the Agent's counsel (it being agreed that the forms of opinions and Representation Certificate attached to this Agreement are satisfactory). The Company will furnish the Agent with such conformed copies of such opinions, certificates, letters and other documents as the Agent shall reasonably request.

#### **5. Indemnification and Contribution.**

(a) *Company Indemnification*. The Company agrees to indemnify and hold harmless the Agent, its affiliates, directors, officers and employees, and each person, if any, who controls the Agent within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act against any losses, claims, damages or liabilities, joint or several, to which the Agent may become subject, under the Securities Act or otherwise (including in settlement of any litigation), insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon, in whole or in part:

(i) an untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, including the Rule 430B Information (as defined below) and at any subsequent time pursuant to Rules 430A and 430B promulgated under the Securities Act, and any other information deemed to be part of the Registration Statement at the time of effectiveness, and at any subsequent time pursuant to the Securities Act or the Exchange Act, and the Prospectus, or any amendment or supplement thereto (including any documents filed under the Exchange Act and deemed to be incorporated by reference into the Prospectus), any Permitted Free Writing Prospectus, or any roadshow as defined in Rule 433(h) under the Securities Act (a "**road show**"), or an omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading; and will reimburse the Agent for any legal or other expenses reasonably incurred by it in connection with investigating or defending against such loss, claim, damage, liability or action; *provided, however*, that the Company shall not be liable in any such case of (i) through (iii) 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, the Prospectus, or any such amendment or supplement, in reliance upon and in conformity with written information furnished to the Company by the Agent specifically for use in the preparation thereof. "**Rule 430B Information**," as used herein, means information with respect to the Shares and the offering thereof permitted to be omitted from the Registration Statement when it becomes effective pursuant to Rule 430B;

(ii) any investigation or proceeding by any governmental authority, commenced or threatened (whether or not the Agent is a target of or party to such investigation or proceeding); and

(iii) any failure of the Company to perform its respective obligations hereunder or under law.



In addition to its other obligations under this Section 5(a), the Company agrees that, as an interim measure during the pendency of any claim, action, investigation, inquiry or other proceeding arising out of or based upon any statement or omission, or any alleged statement or omission, described in this Section 5(a), it will reimburse the Agent on a monthly basis for all reasonable legal fees or other expenses incurred in connection with investigating or defending any such claim, action, investigation, inquiry or other proceeding, notwithstanding the absence of a judicial determination as to the propriety and enforceability of the Company's obligation to reimburse the Agent for such expenses and the possibility that such payments might later be held to have been improper by a court of competent jurisdiction. Any such interim reimbursement payments which are not made to the Agent within 30 days of a request for reimbursement shall bear interest at the WSJ Prime Rate (as published from time to time by the Wall Street Journal).

(b) *Agent Indemnification.* The Agent agrees to indemnify and hold harmless the Company, each of its directors, each officer of the Company who signed the Registration Statement, and each person, if any, who controls the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act, against any losses, claims, damages or liabilities to which such party may become subject, under the Securities Act or otherwise (including in settlement of any litigation, if such settlement is effected with the written consent of the Agent), but only 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, the Prospectus, any amendment or supplement thereto, 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 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 conformity with written information furnished to the Company by the Agent specifically for use in the preparation thereof, it being understood and agreed that the only information furnished by the Agent for use in the Registration Statement or the Prospectus consists of the statements set forth in the second paragraph under the caption "Plan of Distribution" in the Prospectus, and will reimburse such party for any legal or other expenses reasonably incurred by such party in connection with investigating or defending against any such loss, claim, damage, liability or action.

(c) *Notice and Procedures.* Promptly after receipt by an indemnified party under subsection (a) or (b) 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 by such failure. 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 reasonably satisfactory to such indemnified party, and after notice from the indemnifying party to such indemnified party of the indemnifying party's election so to assume the defense thereof, 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 Agent, it is advisable for the Agent to be represented by separate counsel, the Agent shall have the right to employ a single counsel to represent the Agent, 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 Agent as incurred (in accordance with the provisions of the second paragraph in subsection (a) above).

The indemnifying party under this Section 5 shall not be liable for any settlement of any proceeding effected without its written consent, but if settled with such consent or if there be a final judgment for the plaintiff, the indemnifying party agrees to indemnify the indemnified party against any loss, claim, damage, liability or expense by reason of such settlement or judgment. Notwithstanding the foregoing sentence, if at any time an indemnified party shall have requested an indemnifying party to reimburse the indemnified party for fees and expenses of counsel as contemplated by this Section 5, the indemnifying party agrees that it shall be liable for any settlement of any proceeding effected without its written consent if (i) such settlement is entered into more than 30 days after receipt by such indemnifying party of the aforesaid request, (ii) such indemnifying party shall have received notice of the terms of such settlement at least 30 days prior to such settlement being entered into, and (iii) such indemnifying party shall not have reimbursed the indemnified party in accordance with such request prior to the date of such settlement. No indemnifying party shall, without the prior written consent of the indemnified party, effect any settlement, compromise or consent to the entry of judgment in any pending or threatened action, suit or proceeding in respect of which any indemnified party is or could have been a party and indemnity was or could have been sought hereunder by such indemnified party, unless such settlement, compromise or consent (a) includes an unconditional release of such indemnified party from all liability on claims that are the subject matter of such action, suit or proceeding and (b) does not include a statement as to or an admission of fault, culpability or a failure to act by or on behalf of any indemnified party.

(d) *Contribution; Limitations on Liability; Non-Exclusive Remedy.* If the indemnification provided for in this Section 5 is unavailable or insufficient to hold harmless an indemnified party under subsection (a) or (b) above, then each indemnifying party shall contribute to the amount paid or payable by such indemnified party as a result of the 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 Agent on the other from the offering of the Shares, 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 Agent 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 Agent on the other shall be deemed to be in the same proportion as the total net proceeds from the offering (before deducting expenses) received by the Company bear to the total commissions received by the Agent (before deducting expenses) from the sale of the Shares. The relative fault 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 Agent, the intent of the parties and their relative knowledge, access to information and opportunity to correct or prevent such untrue statement or omission. The Company and the Agent agree that it would not be just and equitable if contributions pursuant to this subsection (d) were to be determined by pro rata allocation 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 or payable by an indemnified party as a result of the losses, claims, damages or liabilities referred to in this subsection (d) shall be deemed to include any legal or other expenses reasonably incurred by such indemnified party in connection with investigating or defending against any action or claim which is the subject of this subsection (d). Notwithstanding the provisions of this subsection (d), the Agent shall not be required to contribute any amount in excess of the commissions received by it under this Agreement. No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation.

**6. Representations and Agreements to Survive Delivery.** All representations, warranties, and agreements of the Company herein or in certificates delivered pursuant hereto, including but not limited to the agreements of the Agent and the Company contained in Section 5 hereof, shall remain operative and in full force and effect regardless of any investigation made by or on behalf of the Agent or any controlling person thereof, or the Company or any of its officers, directors, or controlling persons, and shall survive delivery of, and payment for, the Shares to and by the Agent hereunder.

## **7. Termination of this Agreement.**

(a) The Company shall have the right, by giving ten (10) days' written notice as hereinafter specified, to terminate the provisions of this Agreement relating to the solicitation of offers to purchase the Shares in its sole discretion at any time. Any such termination shall be without liability of any party to any other party except that (i) with respect to any pending sale, through the Agent for the Company, the obligations of the Company, including in respect of compensation of the Agent, shall remain in full force and effect notwithstanding the termination and (ii) the provisions of Section 3(g), Section 5 and Section 6 of this Agreement shall remain in full force and effect notwithstanding such termination. Upon termination of this Agreement, the Company shall not have any liability to the Agent for any discount, commission or other compensation with respect to any Shares not sold by the Agent under this Agreement at the time of termination of such provisions.

(b) The Agent shall have the right, by giving ten (10) days' written notice as hereinafter specified, to terminate the provisions of this Agreement relating to the solicitation of offers to purchase the Shares in its sole discretion at any time. Any such termination shall be without liability of any party to any other party except that the provisions of Section 3(g), Section 5 and Section 6 of this Agreement shall remain in full force and effect notwithstanding such termination.

(c) Unless earlier terminated pursuant to this Section 7, this Agreement shall automatically terminate upon the issuance and sale of all of the Shares through the Agent on the terms and subject to the conditions set forth herein, except that the provisions of Section 3(g), Section 5 and Section 6 of this Agreement shall remain in full force and effect notwithstanding such termination.

(d) This Agreement shall remain in full force and effect unless terminated pursuant to Sections 7(a), (b) or (c) above or otherwise by mutual agreement of the parties; provided that any such termination by mutual agreement shall in all cases be deemed to provide that Section 3(g), Section 5 and Section 6 shall remain in full force and effect.

(e) Any termination of this Agreement shall be effective on the date specified in such notice of termination; provided that such termination shall not be effective until the close of business on the date of receipt of such notice by the Agent or the Company, as the case may be. If such termination shall occur prior to the Settlement Date for any sale of the Shares, such sale shall settle in accordance with the provisions of Section 2(a)(vii) of this Agreement.

**8. Default by the Company.** If the Company shall fail at any Settlement Date to sell and deliver the number of Shares which it is obligated to sell hereunder, then this Agreement shall terminate without any liability on the part of the Agent or, except as provided in Section 3(g) hereof, any non-defaulting party. No action taken pursuant to this Section shall relieve the Company from liability, if any, in respect of such default, and the Company shall (A) hold the Agent harmless against any loss, claim or damage arising from or as a result of such default by the Company and (B) pay the Agent any commission to which it would otherwise be entitled absent such default.

**9. Notices.** Except as otherwise provided herein, all communications under this Agreement shall be in writing and, if to the Agent, shall be delivered via overnight delivery services to (i) Piper Sandler & Co., U.S. Bancorp Center, 800 Nicollet Mall, Minneapolis, Minnesota 55402, Attention: Equity Capital Markets, with a copy to Piper Sandler General Counsel at 800 Nicollet Mall, Minneapolis, MN 55402 and LegalCapMarkets@psc.com; and (ii) the Company at 26 Landsdowne Street, Cambridge, Massachusetts 02139, Attention: Chief Executive Officer, with a copy to Goodwin Procter LLP, 3 Embarcadero Center, San Francisco, California, Attention: Marianne Sarrazin; or in each case to such other address as the person to be notified may have requested in writing. 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.

**10. 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 and the controlling persons, officers and directors referred to in Section 5. 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 Shares from the Agent.

**11. Absence of Fiduciary Relationship.** The Company, having been advised by counsel, acknowledges and agrees that: (a) the Agent has been retained solely to act as a sales agent in connection with the sale of the Shares and that no fiduciary, advisory or agency relationship between the Company (including any of the Company’s affiliates (including directors), equity holders, creditors, employees or agents, hereafter, “**Company Representatives**”), on the one hand, and the Agent on the other, has been created or will be created in respect of any of the transactions contemplated by this Agreement, irrespective of whether the Agent has advised or is advising the Company on other matters and irrespective of the use of the defined term “Agent;” (b) neither the Agent nor any of its affiliates (including directors), equity holders, creditors, employees or agents, hereafter, “**Agent Representatives**”) shall have any duty or obligation to the Company or any Company Representative except as set forth in this Agreement; (c) the price and other terms of any Placement executed pursuant to this Agreement, as well as the terms of this Agreement, are deemed acceptable to the Company and its counsel, following discussions and arms-length negotiations with the Agent; (d) the Company is capable of evaluating and understanding, and in fact has evaluated, understands and accepts the terms, risks and conditions of any Placement Notice to be executed pursuant to this Agreement, and any other transactions contemplated by this Agreement; (e) the Company has been advised that the Agent and the Agent Representatives are engaged in a broad range of transactions which may involve interests that differ from those of the Company and that the Agent and the Agent Representatives have no obligation to disclose any such interests and transactions to the Company by virtue of any fiduciary, advisory or agency relationship, or otherwise; (f) the Company has been advised that the Agent is acting, in respect of any Placement and the transactions contemplated by this Agreement, solely for the benefit of the Agent, and not on behalf of the Company; and (g) the Company and the Company Representatives waive, to the fullest extent permitted by law, any claims that they may have against the Agent or any of the Agent Representatives for breach of fiduciary duty or alleged breach of fiduciary duty in respect of any Placement or any of the transactions contemplated by this Agreement and agree that the Agent and the Agent Representatives shall have no liability (whether direct or indirect, in contract, tort or otherwise) to the Company or any of the Company Representatives in respect of any person asserting any claim of breach of any fiduciary duty on behalf of or in right of the Company or any of the Company Representatives.

**12. Recognition of the U.S. Special Resolution Regimes.**

(a) In the event that any Underwriter that is a Covered Entity becomes subject to a proceeding under a U.S. Special Resolution Regime, the transfer from such Underwriter of this Agreement, and any interest and obligation in or under this Agreement, will be effective to the same extent as the transfer would be effective under the U.S. Special Resolution Regime if this Agreement, and any such interest and obligation, were governed by the laws of the United States or a state of the United States.

(b) In the event that any Underwriter that is a Covered Entity or a BHC Act Affiliate of such Underwriter becomes subject to a proceeding under a U.S. Special Resolution Regime, Default Rights under this Agreement that may be exercised against such Underwriter are permitted to be exercised to no greater extent than such Default Rights could be exercised under the U.S. Special Resolution Regime if this Agreement were governed by the laws of the United States or a state of the United States.

(c) As used in this section:

“**BHC Act Affiliate**” has the meaning assigned to the term “affiliate” in, and shall be interpreted in accordance with, 12 U.S.C. § 1841(k);

“**Covered Entity**” means any of the following: (i) a “covered entity” as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 252.82(b); (ii) a “covered bank” as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 47.3(b); or (iii) a “covered FSI” as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 382.2(b);

“**Default Right**” has the meaning assigned to that term in, and shall be interpreted in accordance with, 12 C.F.R. §§ 252.81, 47.2 or 382.1, as applicable; and

“**U.S. Special Resolution Regime**” means each of (i) the Federal Deposit Insurance Act and the regulations promulgated thereunder and (ii) Title II of the Dodd-Frank Wall Street Reform and Consumer Protection Act and the regulations promulgated thereunder.

**13. Governing Law and Waiver of Jury Trial.** This Agreement and any transaction contemplated by this Agreement and any claim, controversy or dispute arising under or related thereto shall be governed by and construed in accordance with the laws of the State of New York without regard to principles of conflict of laws that would result in the application of any other law than the laws of the State of New York. THE COMPANY (ON ITS OWN BEHALF AND ON BEHALF OF ITS STOCKHOLDERS AND AFFILIATES) HEREBY IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, ANY AND ALL RIGHT TO TRIAL BY JURY IN ANY LEGAL PROCEEDING ARISING OUT OF OR RELATING TO THIS AGREEMENT OR THE TRANSACTIONS CONTEMPLATED HEREBY.

**14. Submission to Jurisdiction, Etc.** Each party hereby submits to the exclusive jurisdiction of the U.S. federal and New York state courts sitting in the Borough of Manhattan, City of New York, in any suit or proceeding arising out of or relating to this Agreement or the transactions contemplated hereby. The parties hereby irrevocably and unconditionally waive any objection to the laying of venue of any lawsuit, action or other proceeding in such courts, and hereby further irrevocably and unconditionally waive and agree not to plead or claim in any such court that any such lawsuit, action or other proceeding brought in any such court has been brought in an inconvenient forum.

**15. Counterparts; Electronic Signatures.** This Agreement may be executed in counterparts, each of which shall be deemed an original, and all of which together shall constitute one and the same instrument. Delivery of this Agreement by one party to the other may be made by facsimile, electronic mail (including any electronic signature complying with the New York Electronic Signatures and Records Act (N.Y. State Tech. §§ 301-309), as amended from time to time, or other applicable law) or other transmission method, and the parties hereto agree that any counterpart so delivered shall be deemed to have been duly and validly delivered and be valid and effective for all purposes.

**16. Construction.** The section and exhibit headings herein are for convenience only and shall not affect the construction hereof. References herein to any law, statute, ordinance, code, regulation, rule or other requirement of any governmental authority shall be deemed to refer to such law, statute, ordinance, code, regulation, rule or other requirement of any governmental authority as amended, reenacted, supplemented or superseded in whole or in part and in effect from time to time and also to all rules and regulations promulgated thereunder

[Signature Pages Follow]

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

Very truly yours,

**FULCRUM THERAPEUTICS, INC.**

By: /s/ Bryan Stuart

Name: Bryan Stuart

Title: President and Chief Executive Officer

[Signature Page to Equity Distribution Agreement]

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Confirmed as of the date first  
above mentioned.

**PIPER SANDLER & CO.**

By: /s/ Michael Bassett

\_\_\_\_\_  
Name: Michael Bassett

Title: Managing Director

[Signature Page to Equity Distribution Agreement]

SCHEDULE 1

FORM OF PLACEMENT NOTICE

No Facsimile and No Voicemail

From: Fulcrum Therapeutics, Inc.

To: Piper Sandler & Co.

Attention:

Michael Bassett  
[Michael.Bassett@psc.com](mailto:Michael.Bassett@psc.com)

Neil A. Riley  
[Neil.A.Riley@pjc.com](mailto:Neil.A.Riley@pjc.com)

Connor N. Anderson  
[Connor.N.Anderson@pjc.com](mailto:Connor.N.Anderson@pjc.com)

Tom Wright  
[Thomas.E.Wright@pjc.com](mailto:Thomas.E.Wright@pjc.com)

Jay A. Hershey  
[Jay.A.Hershey@pjc.com](mailto:Jay.A.Hershey@pjc.com)

Date: [•], 20[•]

Subject: Equity Distribution Agreement – Placement Notice

Gentlemen:

Pursuant to the terms and subject to the conditions contained in the Equity Distribution Agreement between Fulcrum Therapeutics, Inc. (“**Company**”), and Piper Sandler & Co. (“**Agent**”) dated May 9, 2022 (the “**Agreement**”), the Company hereby requests that Agent sell up to [•] shares of the Company’s common stock, par value \$0.001 per share, at a minimum market price of \$[•] per share. Sales should begin on the date of this Placement Notice and shall continue until [•]/[all shares are sold].



**SCHEDULE 2**

**NOTICE PARTIES**

**Fulcrum Therapeutics, Inc.**

Bryan Stuart  
[bryan@fulcrumtx.com](mailto:bryan@fulcrumtx.com)

Esther Rajavelu  
[erajavelu@fulcrumtx.com](mailto:erajavelu@fulcrumtx.com)

Curtis Oltmans  
[coltmans@fulcrumtx.com](mailto:coltmans@fulcrumtx.com)

Greg Tourangeau  
[gtourangeau@fulcrumtx.com](mailto:gtourangeau@fulcrumtx.com)

**Piper Sandler & Co.**

Michael Bassett  
[Michael.Bassett@psc.com](mailto:Michael.Bassett@psc.com)

Neil Riley  
[Neil.Riley@psc.com](mailto:Neil.Riley@psc.com)

Connor Anderson  
[Connor.Anderson@psc.com](mailto:Connor.Anderson@psc.com)

Tom Wright  
[Thomas.Wright@psc.com](mailto:Thomas.Wright@psc.com)

Jay Hershey  
[Jay.Hershey@psc.com](mailto:Jay.Hershey@psc.com)

SCHEDULE 3

FORM OF REPRESENTATION CERTIFICATE  
PURSUANT TO SECTION 3(Q) OF THE AGREEMENT

[Date]

Piper Sandler & Co.  
800 Nicollet Mall  
Minneapolis, MN 55402

Sir:

The undersigned, the duly qualified and elected [•], of Fulcrum Therapeutics, Inc., a Delaware corporation (the “**Company**”), does hereby certify solely in such capacity and on behalf of the Company and not in his individual capacity, pursuant to Section 3(q) of the Equity Distribution Agreement, dated May 9, 2022 (the “**Equity Distribution Agreement**”), between the Company and Piper Sandler & Co., that to the best of the knowledge of the undersigned:

(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 the date of the certificate, and the Company has complied with all the agreements and satisfied all the conditions on its part to be performed or satisfied at or prior to the date of this certificate, except for those representations and warranties that speak solely as of a specific date and which were true and correct as of such date; provided, however, that such representations and warranties also shall be qualified by the disclosure included in the Prospectus;

(ii) The Company has complied with all the agreements and satisfied all the conditions on its part to be performed or satisfied at or prior to the date of this certificate;

(iii) 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 Shares for Registration Statement, nor suspending or preventing the use of the Prospectus Supplement, the Prospectus or any Permitted Free Writing Prospectus, has been issued, and no proceeding for the issuance of such an order has been initiated or threatened; and

(iv) No event or condition of a type described in Section 4(b) or 4(d) of the Equity Distribution Agreement has occurred and is continuing, which event or condition is not described in the Prospectus or otherwise disclosed in the Company’s reports filed with the Commission.

Capitalized terms used herein without definition shall have the meanings given to such terms in the Equity Distribution Agreement.

FULCRUM THERAPEUTICS, INC.

By: \_\_\_\_\_  
\_\_\_\_\_

Name: \_\_\_\_\_  
\_\_\_\_\_

Title: \_\_\_\_\_  
\_\_\_\_\_



Goodwin Procter LLP  
3 Embarcadero Center  
San Francisco, CA 94111

goodwinlaw.com  
+1 (415) 733-6000

May 9, 2022

Fulcrum Therapeutics, Inc.  
26 Landsdowne Street  
Cambridge, Massachusetts 02139

Re: Securities Being Registered under Registration Statement on Form S-3

We have acted as counsel to you in connection with your filing of Amendment No. 2 to the Registration Statement on Form S-3 (File No. 333-260754) (as amended or supplemented, the "Registration Statement"), filed on March 3, 2022 with the Securities and Exchange Commission (the "Commission") pursuant to the Securities Act of 1933, as amended (the "Securities Act"), relating to the registration of the offering by Fulcrum Therapeutics, Inc., a Delaware corporation (the "Company"), of up to \$250,000,000 of any combination of securities of the types specified therein. The Registration Statement was declared effective on April 28, 2022. Reference is made to our opinion letter dated March 3, 2022 and included as Exhibit 5.1 to the Registration Statement. We are delivering this supplemental opinion letter in connection with the prospectus supplement (the "Prospectus Supplement") filed on May 9, 2022 by the Company with the Commission pursuant to Rule 424 under the Securities Act. The Prospectus Supplement relates to the offering by the Company of up to \$50,000,000 of shares (the "Shares") of the Company's common stock, par value \$0.001 per share ("Common Stock") covered by the Registration Statement. The Shares are being offered and sold by the sales agent named in, and pursuant to, distribution agreement among the Company and such sales agent.

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

For purposes of the opinion set forth below, we have assumed that the Shares are issued for a price per share equal to or greater than the minimum price authorized by the Company's board of directors prior to the date hereof (the "Minimum Price") and that no event occurs that causes the number of authorized shares of Common Stock available for issuance by the Company to be less than the number of then unissued Shares that may be issued for the Minimum Price.

For purposes of the opinion set forth below, we refer to the following as "Future Approval and Issuance": (a) the approval by the Company's board of directors (or a duly authorized committee of the board of directors) of the issuance of the Shares (the "Approval") and (b) the issuance of the Shares in accordance with the Approval and the receipt by the Company of the consideration (which shall not be less than the par value of such Shares) to be paid in accordance with the Approval.

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

Based on the foregoing, we are of the opinion that the Shares have been duly authorized and, upon Future Approval and Issuance, will be validly issued, fully paid and nonassessable.

This opinion is being furnished to you for submission to the Commission as an exhibit to the Company's Current Report on Form 8-K relating to the Shares (the "Current Report"), which is incorporated by reference in the Registration Statement. We hereby consent to the filing of this opinion letter as an exhibit to the Current Report and its incorporation by reference and the reference to our firm in that report.

In giving our consent, we do not admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations thereunder.

Very truly yours,

/s/ Goodwin Procter LLP

GOODWIN PROCTER LLP