

**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): October 15, 2021

CATALYST BIOSCIENCES, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction
of incorporation)

000-51173
(Commission
File Number)

56-2020050
(IRS Employer
Identification No.)

611 Gateway Blvd, Suite 710, South San Francisco, CA 94080
(Address of principal executive offices)

(650) 871-0761
(Registrant's telephone number, including area code)

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:

- 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:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock	CBIO	Nasdaq

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 October 15, 2021, Catalyst Biosciences, Inc. (the “Company”) entered into an Equity Distribution Agreement (the “Equity Distribution Agreement”) with Piper Sandler & Co. (“Piper Sandler”) under 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”), with aggregate gross sales proceeds of up to \$50,000,000 through an “at the market” equity offering program under which Piper Sandler will act as sales agent.

Under the Equity Distribution Agreement, the Company will set the parameters for the sale of shares, including the number of shares to be issued, the time period during which sales are requested to be made, limitations on the number of shares that may be sold in any one trading day and any minimum price below which sales may not be made. Subject to the terms and conditions of the Equity Distribution Agreement, Piper Sandler may sell the shares by methods deemed to be an “at the market” offering as defined in Rule 415 promulgated under the Securities Act of 1933, as amended, including sales made through The Nasdaq Capital Market or any other trading market for the Common Stock.

The Equity Distribution Agreement provides that Piper Sandler will be entitled to compensation for its services equal to 3.0% of the gross proceeds of any shares of Common Stock sold through Piper Sandler under the Equity Distribution Agreement and the Company will reimburse Piper Sandler for certain expenses incurred in connection with its services under the Equity Distribution Agreement, including up to \$50,000 for legal expenses in connection with the establishment of the at-the-market offering. The Company has no obligation to sell any shares under the Equity Distribution Agreement, and may at any time suspend solicitation and offers under the Equity Distribution Agreement. The offering of shares pursuant to the Equity Distribution Agreement will terminate upon the earlier of (i) the sale of all shares subject to the Equity Distribution Agreement or (ii) termination of the Equity Distribution Agreement in accordance with its terms.

The shares will be issued pursuant to the Company’s shelf registration statement on Form S-3 (File No. 333-253874), which was declared effective by the Securities and Exchange Commission (the “SEC”) on May 3, 2021. The Company filed a prospectus supplement, dated October 15, 2021 with the SEC in connection with the offer and sale of the shares pursuant to the Equity Distribution Agreement.

The foregoing description of the Equity Distribution Agreement does not purport to be complete and is qualified in its entirety by reference to the full text of the Equity Distribution Agreement. A copy of the Equity Distribution Agreement is filed with this Current Report on Form 8-K as Exhibit 1.1 and is incorporated herein by reference.

A copy of the legal opinion of Orrick, Herrington & Sutcliffe LLP, relating to the validity of the shares of Common Stock that may be sold pursuant to the Equity Distribution Agreement, is filed with this Current Report on Form 8-K as Exhibit 5.1.

This Current Report on Form 8-K shall not constitute an offer to sell or the solicitation of any 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 8.01 Other Events.

On September 28, 2021, the Company updated its corporate presentation to include the following: (i) the announcement that the U.S. Food and Drug Administration (the “FDA”) granted Orphan Drug Disease Designation (“ODD”) for the Company’s lead product candidate, subcutaneous Marzeptacog alfa (activated), (“MarzAA”), for the treatment of Factor VII Deficiency in September 2021; (ii) the Company’s plans to submit its first report related to the safety and effectiveness of SQ MarzAA to treat a bleeding episode to the Data and Safety Monitoring Board in the first quarter of 2022; and (iii) the receipt by the Company of pre-IND guidance from the FDA on the design of the Company’s CB 4332 phase 1 clinical study as well as the overall development program.

Forward-Looking Statements

This Current Report on Form 8-K contains forward-looking statements that involve substantial risks and uncertainties. Forward-looking statements include statements about the Company's plans to submit its first report related to the safety and effectiveness of SQ MarzAA to the Data and Safety Monitoring Board in the first quarter of 2022; the significance of the ODD designation, the potential of CB 4332 to be a meaningful therapy in multiple indications, and potential markets for and advantages of the Company's other complement product candidates, including CB 2782-PEG and complement degraders and plans for the Company's collaboration with Biogen. Actual results or events could differ materially from the plans, intentions, expectations and projections disclosed in the forward-looking statements. Various important factors could cause actual results or events to differ materially, including, but not limited to, the risk that trials and studies may be delayed as a result of COVID-19, competitive products and other factors, that trials may not have satisfactory outcomes, the risk the Company may elect to terminate or postpone ongoing development programs, including development of MarzAA or any of the Company's complement assets, the risk that the Company will need to raise additional capital, which may not be available on favorable terms if at all; the risk that costs required to develop or manufacture the Company's products will be higher than anticipated, including as a result of delays in trial enrollment, development and manufacturing resulting from COVID-19 and other factors, the risk that Biogen may terminate the agreement with the Company, and other risks described in the "Risk Factors" section of the Company's Annual Report on Form 10-K for the year ended December 31, 2020, filed with the SEC on March 4, 2021, the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2021, filed with the SEC on August 5, 2021 and in other filings filed from time to time with the SEC. The Company does not assume any obligation to update any forward-looking statements, except as required by law.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits

<u>Exhibit No.</u>	<u>Description</u>
1.1	Equity Distribution Agreement, dated as of October 15, 2021, between Catalyst Biosciences, Inc. and Piper Sandler & Co.
5.1	Opinion of Orrick, Herrington & Sutcliffe LLP.
23.1	Consent of Orrick, Herrington & Sutcliffe LLP (included in Exhibit 5.1).
104	Cover Page Interactive Data File (formatted as Inline XBRL).

SIGNATURES

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

Date: October 15, 2021

CATALYST BIOSCIENCES, INC.

/s/ Nassim Usman

Nassim Usman, Ph.D.

President and Chief Executive Officer

Catalyst Biosciences, Inc.

EQUITY DISTRIBUTION AGREEMENT

October 15, 2021

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”**), Catalyst Biosciences, 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”**) (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 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 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”**), 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 (File No. 333-253874), 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**”).

(ii) *Continuing Effectiveness of Registration Statement.* The Registration Statement and any Rule 462(b) Registration Statement have been declared effective by the Commission under the Securities Act. The Company has complied, to the Commission’s satisfaction, 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 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 or 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, and as of each Settlement Date (as defined in Section 2(a)(vii) below), complied in all material respects with the Securities Act, and as of each effective date and each Settlement 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, as of each of the Settlement Date, 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 described in the Prospectus or to be filed as exhibits to the Registration Statement which have not been described or filed as required.

(iv) *Eligible Issuer.* The Company is not an “ineligible issuer” (as defined in Rule 405 under the Securities Act) as of the eligibility determination date for purposes of Rules 164 and 433 under the Securities Act with respect to the offering of the Shares contemplated by the Registration Statement; the parties hereto agree and understand that the content of any and all “road shows” (as defined in Rule 433 under the Securities Act) related to the offering of the Shares contemplated hereby is solely the property of the Company.

(v) *Financial Statements.* The financial statements of the Company, together with the related notes, set forth or incorporated by reference in the Registration Statement and the Prospectus comply in all material respects with the requirements of the Securities Act and the Exchange Act and fairly present in all material respects the financial condition of the Company and its consolidated subsidiaries as of the dates indicated and the results of operations and changes in cash flows for the periods therein specified in conformity with generally accepted accounting principles (“GAAP”) in the United States consistently applied throughout the periods involved; the supporting schedules included in the Registration Statement present fairly in all material respects the information required to be stated therein; all non-GAAP financial information included or incorporated by reference in the Registration Statement and the Prospectus complies in all material respects with the requirements of Regulation G and Item 10 of Regulation S-K under the Act, to the extent applicable; and, except as disclosed in the Registration Statement and Prospectus, there are no material off-balance sheet arrangements (as defined in Regulation S-K under the Act, Item 303(a)(4)(ii)) or any other relationships with unconsolidated entities or other persons, that may have a material current or, to the Company’s knowledge, material future effect on the Company’s financial condition, results of operations, liquidity, capital expenditures, capital resources or significant components of revenue or expenses. No other financial statements or schedules are required to be included in the Registration Statement or the Prospectus.

(vi) *No Off-Balance Sheet Transactions.* There are no transactions, arrangements and other relationships between and/or among the Company, and/or, to the knowledge of the Company, any of its affiliates and any unconsolidated entity, including,

but not limited to, any structural finance, special purpose or limited purpose entity (each, an “**Off-Balance Sheet Transaction**”) that could reasonably be expected to affect materially the Company’s liquidity or the availability of or requirements for its capital resources, including those Off Balance Sheet Transactions described in the Commission’s Statement about Management’s Discussion and Analysis of Financial Conditions and Results of Operations (Release Nos. 33-8056; 34-45321; FR-61), and are required to be described in the Prospectus, which have not been described as required.

(vii) *Auditor Independence.* EisnerAmper LLP, who have certified certain financial statements of the Company and its consolidated subsidiaries (the “**Subsidiaries**”), whose report appears in the Registration Statement and the Prospectus, are independent public accountants as required by the Securities Act and the Public Accounting Oversight Board.

(viii) *No Material Adverse Effect.* The Company and each of its Subsidiaries (a complete list of the Subsidiaries is included as Schedule 3 hereto) has been duly organized, validly existing as a corporation and in good standing under the laws of their respective jurisdictions of organization. The Company and each of its Subsidiaries are, and will be, duly licensed or qualified as a foreign corporation for transaction of business and in good standing under the laws of each other jurisdiction in which their respective ownership or lease of property or the conduct of their respective businesses requires such license or qualification, and have all corporate power and authority necessary to own or hold their respective properties and to conduct their respective businesses as described in the Registration Statement and the Prospectus, except where the failure to be so qualified or in good standing or have such power or authority would not, individually or in the aggregate, have a Material Adverse Effect. “**Material Adverse Effect**” shall mean any material adverse change or effect, or any development involving a prospective material adverse change or effect, on or affecting (i) the business, earnings, assets, liabilities, prospects, condition (financial or otherwise), operations, general affairs, management, financial position, stockholders’ equity or results of operations of the Company and the Subsidiaries taken as a whole, or (ii) the ability of the Company to perform its obligations under this Agreement, including the issuance and sale of the Shares, or to consummate the transactions contemplated in the Prospectus. The Company does not own or control, directly or indirectly, any corporation, association or other entity other than the subsidiaries listed in Exhibit 21.1 to the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2020 except for subsidiaries that in the aggregate would not constitute a “significant subsidiary” (as defined in Rule 405 under the Securities Act).

(ix) *Capitalization.* The Company has an authorized capitalization as set forth in each of the Registration Statement and the Prospectus, and all of the issued shares of the Company have been duly authorized and validly issued, are fully paid and non-assessable, conform in all material respects to the description thereof contained in the Registration Statement and the Prospectus and were not issued in violation of any preemptive right, resale right, right of first refusal or similar right. All of the Company’s options, warrants and other rights to purchase or exchange any securities for shares of the

Company's capital stock have been duly authorized and validly issued, and conform in all material respects to the description thereof contained in the Registration Statement and the Prospectus. All of the issued shares of capital stock or other ownership interest of each subsidiary of the Company have been duly authorized and validly 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, except for such liens, encumbrances, equities or claims as would not, individually or in the aggregate, result in a Material Adverse Effect.

(x) *Due Authorization, Valid Issuance and Non-Assessability of Shares.* The Shares to be issued and sold by the Company to the Agent hereunder have been duly authorized and, upon payment and delivery in accordance with this Agreement, will be validly issued, fully paid and non-assessable, will conform in all material respects to the description thereof contained in the Registration Statement and the Prospectus, will be issued in compliance with federal and state securities laws and will be free of statutory and contractual preemptive rights, rights of first refusal and similar rights.

(xi) *Authority to Enter into this Agreement.* The Company has all requisite corporate power and authority to execute, deliver and perform its obligations under this Agreement. This Agreement has been duly and validly authorized, executed and delivered by the Company.

(xii) *Non-Contravention.* The issue and sale of the Shares, the execution, delivery and performance of this Agreement by the Company, the consummation of the transactions contemplated hereby and the application of the proceeds from the sale of the Shares as described under "Use of Proceeds" in the Registration Statement and the Prospectus will not (i) conflict with or result in a breach or violation of any of the terms or provisions of, impose any lien, charge or encumbrance upon any property or assets of the Company and its subsidiaries, or constitute a default under, any indenture, mortgage, deed of trust, loan agreement, license, lease or other agreement or instrument to which the Company or any of its subsidiaries is a party or by which the Company or any of its subsidiaries is bound or to which any of the property or assets of the Company or any of its subsidiaries is subject; (ii) result in any violation of the provisions of the articles of association, charter or by-laws (or similar organizational documents) of the Company or any of its subsidiaries; or (iii) result in any violation of any statute or any judgment, order, decree, rule or regulation of any court or governmental agency or body having jurisdiction over the Company or any of its subsidiaries or any of their properties or assets, except, with respect to clauses (i) and (iii), for such conflicts, breaches, violations, liens, charges, encumbrances or defaults that would not, individually or in the aggregate, result in a Material Adverse Effect.

(xiii) *No Consent or Approval Required.* No consent, approval, authorization or order of, or filing, registration or qualification with, any court or governmental agency or body having jurisdiction over the Company or any of its subsidiaries or any of their properties or assets is required for the issue and sale of the Shares, the execution, delivery and performance of this Agreement by the Company, the consummation of the transactions contemplated hereby, the application of the proceeds from

the sale of the Shares as described under “Use of Proceeds” in the Registration Statement and the Prospectus, except for (i) the registration of the Shares under the Securities Act; (ii) such consents, approvals, authorizations, orders, filings, registrations or qualifications as may be required under the Exchange Act, and applicable state or foreign securities laws and/or the bylaws and rules of the Financial Industry Regulatory Authority (the “**FINRA**”) in connection with the sale of the Shares by the Agent; and (iii) the inclusion of the Shares on the Nasdaq Capital Market (“**Nasdaq**”).

(xiv) *Internal Controls.* The Company and each of its subsidiaries maintain a system of “internal controls over financial reporting” (as defined in Rule 13a-15(f) of the Exchange Act) sufficient to provide reasonable assurances regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles in the United States, including, but not limited to, internal accounting controls sufficient to provide reasonable assurance that (i) transactions are executed in accordance with management’s general or specific authorization, (ii) transactions are recorded as necessary to permit preparation of the Company’s financial statements in conformity with generally accepted accounting principles in the United States and to maintain accountability for its assets, (iii) access to the Company’s assets is permitted only in accordance with management’s general or specific authorization, (iv) the recorded accountability for the Company’s assets is compared with existing assets at reasonable intervals and appropriate action is taken with respect to any differences, and (v) the interactive data in eXtensible Business Reporting Language included or incorporated by reference in the Registration Statement and the Prospectus fairly present the information called for in all material respects and are prepared in accordance with the Commission’s rules and guidelines applicable thereto. Except as disclosed in the Registration Statement or the Prospectus, as of the date of the most recent balance sheet of the Company and its consolidated subsidiaries audited by EisnerAmper LLP, there were no “significant deficiencies” or “material weaknesses” (each as defined by the Public Company Accounting Oversight Board) in the Company’s internal controls over financial reporting, or any fraud, whether or not material, that involves management or other employees of the Company and its subsidiaries who have a significant role in the Company’s internal controls; and since the end of the latest audited fiscal year, there has been no change in the Company’s internal control over financial reporting (whether or not remediated) that has materially affected, or is reasonably likely to materially affect, the Company’s internal control over financial reporting. The Company’s board of directors has, subject to the exceptions, cure periods and the phase in periods specified in the applicable stock exchange rules (“**Exchange Rules**”), validly appointed an audit committee to oversee internal accounting controls whose composition satisfies the applicable requirements of the Exchange Rules and the Company’s board of directors and/or the audit committee has adopted a charter that satisfies the requirements of the Exchange Rules.

(xv) *Disclosure Controls.* The Company and its subsidiaries maintain an effective system of “disclosure controls and procedures” (as defined in Rule 13a-15(e) of the Exchange Act) that complies with the requirements of the Exchange Act and that has been designed to ensure that information required to be disclosed by the Company in

reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Commission's rules and forms, including controls and procedures designed to ensure that such information is accumulated and communicated to the Company's management as appropriate to allow timely decisions regarding required disclosure. The Company and its subsidiaries have carried out evaluations of the effectiveness of their disclosure controls and procedures as required by Rule 13a-15 of the Exchange Act.

(xvi) *Critical Accounting Policies.* The section entitled "Critical Accounting Policies" incorporated by reference in the Registration Statement and the Prospectus accurately describes in all material respects (i) the accounting policies that the Company believes are the most important in the portrayal of the Company's financial condition and results of operations and that require management's most difficult, subjective or complex judgments ("**Critical Accounting Policies**"); (ii) the judgments and uncertainties affecting the application of Critical Accounting Policies; and (iii) the likelihood that materially different amounts would be reported under different conditions or using different assumptions, and an explanation thereof.

(xvii) *Sarbanes-Oxley Compliance.* There is and has been no failure on the part of the Company or, to the knowledge of the Company, any of the Company's directors or officers, in their capacities as such, to comply with any provision of the Sarbanes-Oxley Act of 2002 and the rules and regulations promulgated in connection therewith that are applicable to the Company or its directors or officers in their capacities as directors or officers of the Company.

(xviii) *Exceptions.* Except as would not, in the aggregate, result in a Material Adverse Effect, since the date of the latest audited financial statements included in the Registration Statement and the Prospectus, and, except as disclosed in the Registration Statement and the Prospectus, neither the Company nor any of its subsidiaries has (i) sustained any loss or interference with its business from fire, explosion, flood or other calamity, whether or not covered by insurance, or from any labor dispute or court or governmental action, order or decree, (ii) issued or granted any securities (other than pursuant to employee benefit plans, qualified stock option plans or other equity compensation plans or arrangements existing on the date hereof and disclosed in the Registration Statement and the Prospectus (the "**Specified Equity Plans**")), (iii) incurred any material liability or obligation, direct or contingent, other than liabilities and obligations that were incurred in the ordinary course of business, (iv) entered into any material transaction not in the ordinary course of business, or (v) declared or paid any dividend on its share capital; and since such date, except as disclosed in the Registration Statement and the Prospectus, there has not been any change in the share capital, long-term debt, net current assets or short-term debt of the Company or any of its subsidiaries or any adverse change, or any development involving a prospective adverse change, in or affecting the condition (financial or otherwise), results of operations, shareholders' equity, properties, management, business or prospects of the Company and its subsidiaries taken as a whole.

(xix) *Valid Title.* The Company and each of its subsidiaries have good and marketable title in fee simple to all real property and good and marketable title to all personal property owned by them, that are material to the business of the Company, in each case free and clear of all liens, encumbrances and defects, except such liens, encumbrances and defects as do not materially affect the value of such property and do not materially interfere with the use made and proposed to be made of such property by the Company and its subsidiaries. All assets held under lease by the Company and its subsidiaries, that are material to the business of the Company, are held by them under valid, subsisting and enforceable leases, with such exceptions as do not materially interfere with the use made and proposed to be made of such assets by the Company and its subsidiaries.

(xx) *Intellectual Property.* The Company and each of its subsidiaries owns, licenses, possesses, or can acquire on reasonable terms, all Intellectual Property (as defined below) necessary for the conduct of the Company's and its subsidiaries' business as now conducted or as proposed to be conducted, as described in the Registration Statement and the Prospectus to be conducted, except as such failure to own, possess or acquire such rights would not result in a Material Adverse Effect. Furthermore, except as disclosed in the Registration Statement and the Prospectus, or as would not reasonably be expected to result in a Material Adverse Effect: (A) to the knowledge of the Company, there is no infringement, misappropriation or violation by third parties of any such Intellectual Property; (B) there is no pending or, to the knowledge of the Company, threatened, action, suit, proceeding or claim by any third party challenging the Company's or any of its subsidiaries' rights in or to any such Intellectual Property, and the Company is unaware of any facts which would form a reasonable basis for any such claim; (C) the Intellectual Property owned by the Company and its subsidiaries, and to the knowledge of the Company, the Intellectual Property licensed to the Company and its subsidiaries, has not been adjudged invalid or unenforceable, in whole or in part, and there is no pending or, to the knowledge of the Company, threatened action, suit, proceeding or claim by any third party challenging the validity or scope of any such Intellectual Property, and the Company is unaware of any facts which would form a reasonable basis for any such claim; (D) there is no pending or, to the knowledge of the Company, threatened action, suit, proceeding or claim by any third party that the Company or any of its subsidiaries infringes, misappropriates or otherwise violates any Intellectual Property or other proprietary rights of others, and neither the Company nor any of its subsidiaries has received any written notice of such claim and the Company is unaware of any other fact which would form a reasonable basis for any such claim; (E) to the Company's knowledge, no employee of the Company or any of its subsidiaries is in or has ever been in violation of any term of any employment contract, patent disclosure agreement, invention assignment agreement, non-competition agreement, non-solicitation agreement, nondisclosure agreement or any restrictive covenant to or with a former employer where the basis of such violation relates to such employee's employment with the Company or any of its subsidiaries or actions undertaken by the employee while employed with the Company or any of its subsidiaries; (F) there is no prior art or public or commercial activity of which the Company is aware that may render any patent included in the Intellectual Property invalid or that would preclude the issuance of any patent on any

patent application included in the Intellectual Property, which has not been disclosed to the U.S. Patent and Trademark Office or the relevant foreign patent authority, as the case may be; (G) to the Company's knowledge, the issued patents included in the Intellectual Property are valid and enforceable and the Company is unaware of any facts that would preclude the issuance of a valid and enforceable patent on any pending patent application included in the Intellectual Property; (H) the Company has taken reasonable steps necessary to secure the interests of the Company in the Intellectual Property purported to be owned by the Company from all employees, consultants, agents or contractors that developed (in whole or in part) such Intellectual Property; (I) no government funding, facilities or resources of a university, college, other educational institution or research center was used in the development of any Intellectual Property that is owned or purported to be owned by the Company that would confer upon any governmental agency or body, university, college, other educational institution or research center any claim or right in or to any such Intellectual Property; and (J) to the Company's knowledge, none of the technology employed by the Company has been obtained or is being used by the Company in violation of the rights of any entity. "**Intellectual Property**" shall mean all patents, patent applications, trade and service marks, trade and service mark registrations, trade names, copyrights, licenses, inventions, trade secrets, domain names, technology, know-how and other intellectual property in the United States and foreign jurisdictions.

(xxi) *Health Care Authorizations.* The Company has submitted and possesses, or qualifies for applicable exemptions to, such valid and current registrations, listings, approvals, clearances, licenses, certificates, authorizations or permits and supplements or amendments thereto issued or required by the appropriate state, federal or foreign regulatory agencies or bodies necessary to conduct its business ("**Permits**"), including, without limitation, all such Permits required by the U.S. Food and Drug Administration (the "**FDA**"), the U.S. Department of Health and Human Services ("**HHS**"), the U.S. Centers for Medicare & Medicaid Services ("**CMS**"), the European Medicines Agency ("**EMA**"), Health Canada or any other comparable state, federal or foreign agencies or bodies to which it is subject, and the Company has not received any notice of proceedings relating to the revocation or modification of, or non-compliance with, any such Permit, except for such Permits, the lack of which would not, individually or in the aggregate, result in a Material Adverse Effect.

(xxii) *Compliance with Health Care Laws.* The Company and, to the Company's knowledge, its directors, employees and agents (while acting in such capacity) are and at all times have been in compliance in all material respects with all health care laws applicable to the Company, or any of its products or activities, including, but not limited to, the federal Anti-Kickback Statute (42 U.S.C. Section 1320a-7b(b)), the Anti-Inducement Law (42 U.S.C. Section 1320a-7a(a)(5)), the civil False Claims Act (31 U.S.C. Section 3729 et seq.), the administrative False Claims Law (42 U.S.C. Section 1320a-7b(a)), the Stark law (42 U.S.C. Section 1395nn), the Health Insurance Portability and Accountability Act of 1996 (42 U.S.C. Section 1320d et seq.) as amended by the Health Information Technology for Economic and Clinical Health Act (42 U.S.C. Section 17921 et seq.), the exclusion

laws (42 U.S.C. Section 1320a-7), the Federal Food, Drug, and Cosmetic Act (21 U.S.C. Section 301 et seq.), the Controlled Substances Act (21 U.S.C. Section 801 et seq.), the Public Health Service Act (42 U.S.C. Section 201 et seq.), the Clinical Laboratory Improvement Amendments of 1988 (42 U.S.C. Section 263a), Medicare (Title XVIII of the Social Security Act), Medicaid (Title XIX of the Social Security Act), and the Patient Protection and Affordable Care Act of 2010, as amended by the Health Care and Education Reconciliation Act of 2010, the regulations promulgated pursuant to such laws, and any other state, federal or foreign law, accreditation standards, regulation, memorandum, opinion letter, or other issuance which imposes requirements on manufacturing, development, testing, labeling, advertising, marketing, promotion, distribution, reporting, kickbacks, patient or program charges, recordkeeping, claims process, documentation requirements, medical necessity, referrals, the hiring of employees or acquisition of services or supplies from those who have been excluded from government health care programs, quality, safety, privacy, security, licensure, accreditation or any other aspect of providing health care, clinical laboratory or diagnostics products or services (collectively, "**Health Care Laws**"). The Company has not received any notification, correspondence or any other written or oral communication, including notification of any pending or threatened claim, suit, proceeding, hearing, enforcement, investigation, arbitration or other action from any governmental authority, including, without limitation, the FDA, the EMA, Health Canada, the U.S. Federal Trade Commission, the U.S. Drug Enforcement Administration ("**DEA**"), CMS, HHS's Office of Inspector General, the U.S. Department of Justice and state Attorneys General or similar agencies of potential or actual non-compliance by, or liability of, the Company under any Health Care Laws, except, with respect to any of the foregoing, such as would not, individually or in the aggregate, result in a Material Adverse Effect. To the Company's knowledge, there are no facts or circumstances that would reasonably be expected to give rise to material liability of the Company under any Health Care Laws. The statements with respect to Health Care Laws and the Company's compliance therewith included in the Registration Statement and in the Prospectus fairly summarize in all material respects the matters therein described.

(xxiii) *Clinical Trials*. The studies, tests and preclinical and clinical trials conducted by or on behalf of, or sponsored by, the Company, or in which the Company has participated, that are described in the Registration Statement or the Prospectus, or the results of which are referred to in the Registration Statement or the Prospectus, were and, if still pending, are being conducted in all material respects in accordance with protocols, procedures and controls pursuant to, where applicable, accepted professional and scientific standards for products or product candidates comparable to those being developed by the Company and all applicable statutes, rules and regulations of the FDA, the EMA, Health Canada and other comparable regulatory agencies outside of the U.S. to which they are subject, including, without limitation, 21 C.F.R. Parts 50, 54, 56, 58 and 312; the descriptions of the results of such studies, tests and trials contained in the Registration Statement or the Prospectus do not contain any misstatement of a material fact or omit a material fact necessary to make such

statements not misleading; the Company has no knowledge of any studies, tests or trials not described in the Registration Statement and the Prospectus the results of which reasonably call into question in any material respect the results of the studies, tests and trials described in the Registration Statement or Prospectus; and the Company has not received any written notices or other correspondence from the FDA, EMA, Health Canada or any other foreign, state or local governmental body exercising comparable authority or any Institutional Review Board or comparable authority requiring or threatening the termination, suspension or material modification of any studies, tests or preclinical or clinical trials conducted by or on behalf of, or sponsored by, the Company or in which the Company has participated, and, to the Company's knowledge, there are no reasonable grounds for the same. Except as disclosed in the Registration Statement and the Prospectus, there has not been any violation of law or regulation by the Company in its respective product development efforts, submissions or reports to any regulatory authority that could reasonably be expected to require investigation, corrective action or enforcement action.

(xxiv) *No Safety Notices.* (i) Except as disclosed in the Registration Statement and the Prospectus, there have been no recalls, field notifications, field corrections, market withdrawals or replacements, warnings, "dear doctor" letters, investigator notices, safety alerts or other notice of action relating to an alleged lack of safety, efficacy, or regulatory compliance of the Company's products ("**Safety Notices**") and (ii) to the Company's knowledge, there are no facts that would be reasonably likely to result in (x) a Safety Notice with respect to the Company's products or services, (y) a change in labeling of any the Company's respective products or services, or (z) a termination or suspension of marketing or testing of any the Company's products or services.

(xxv) *Absence of Settlement Agreements or Undertakings.* Except as disclosed in the Registration Statement and the Prospectus, the Company is not a party to any corporate integrity agreements, monitoring agreements, consent decrees, settlement orders, or similar agreements with or imposed by any governmental authority.

(xxvi) *Absence of Legal or Governmental Proceedings.* Except as disclosed in the Registration Statement and the Prospectus, there are no legal or governmental proceedings pending to which the Company or any of its subsidiaries is a party or of which any property or assets of the Company or any of its subsidiaries is the subject that, if determined adversely to the Company, would, in the aggregate, result in a Material Adverse Effect; and to the Company's knowledge, no such proceedings are threatened or contemplated by governmental authorities or others.

(xxvii) *Material Contracts.* There are no contracts or other documents required to be described in the Registration Statement or filed as exhibits to the Registration Statement that are not described and filed as required. The statements made in the Registration Statement and Prospectus, insofar as they purport to constitute summaries of the terms of the contracts and other documents described and filed, constitute accurate

summaries of the terms of such contracts and documents in all material respects. Except as disclosed in the Registration Statement and the Prospectus, neither the Company nor any of its subsidiaries has knowledge that any other party to any such contract or other document has any intention not to render full performance as contemplated by the terms thereof.

(xxviii) *Insurance.* The Company and each of its subsidiaries maintain insurance from nationally recognized, in the applicable country, insurers in such amounts and covering such risks as is commercially reasonable in accordance with customary practices for companies engaged in similar businesses and similar industries for the conduct of their respective businesses and the value of their respective properties and as is customary for companies engaged in similar businesses in similar industries. All policies of insurance of the Company and its subsidiaries are in full force and effect; the Company and each of its subsidiaries are in compliance with the terms of such policies in all material respects; and neither the Company nor any of its subsidiaries has received notice from any insurer or agent of such insurer that capital improvements or other expenditures are required or necessary to be made in order to continue such insurance; there are no material claims by the Company or any of its subsidiaries under any such policy or instrument as to which any insurance company is denying liability or defending under a reservation of rights clause; and neither the Company nor any such subsidiary 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 result in a Material Adverse Effect.

(xxix) *Related Party Disclosure.* No relationship, direct or indirect, exists between or among the Company, on the one hand, and the directors, officers, shareholders, customers or suppliers of the Company, on the other hand, that is required to be described in the Registration Statement or the Prospectus which is not so described.

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

(xxxi) *No Violation or Default.* Except as disclosed in the Registration Statement and the Prospectus, neither the Company nor any of its subsidiaries (i) is in violation of its articles of association, charter or by-laws (or similar organizational documents), (ii) is in default, and no event has occurred that, with notice or lapse of time or both, would constitute such a default, in the due performance or observance of any term, covenant, condition or other obligation contained in any indenture, mortgage, deed of trust, loan agreement, license or other agreement or instrument to which it is a party or by which it is bound or to which any of its properties or assets is subject, or (iii) is in violation of any statute or any order, rule or regulation of any court or governmental agency or body having jurisdiction over it or its property or assets or has failed to obtain any license, permit,

certificate, franchise or other governmental authorization or permit necessary to the ownership of its property or to the conduct of its business, except in the case of clauses (ii) and (iii), to the extent any such conflict, breach, violation or default would not, individually or in the aggregate, result in a Material Adverse Effect.

(xxxii) *Environmental Laws.* Except as disclosed in the Registration Statement and the Prospectus, neither the Company nor any of its subsidiaries is in violation of any statute, any rule, regulation, decision or order of any governmental authority or any court, domestic or foreign, relating to the use, disposal or release of hazardous or toxic substances or relating to the protection or restoration of the environment or human exposure to hazardous or toxic substances (collectively, “**Environmental Laws**”), owns or operates any real property contaminated with any substance that is subject to any Environmental Laws, is liable for any off-site disposal or contamination pursuant to any Environmental Laws, or is subject to any claim relating to any Environmental Laws, which violation, contamination, liability or claim would individually or in the aggregate, result in a Material Adverse Effect; and the Company is not aware of any pending investigation which might lead to such a claim. Neither the Company nor any of its subsidiaries anticipates incurring any material capital expenditures relating to compliance with Environmental Laws.

(xxxiii) *Compliance with Occupational Laws.* The Company and each of its subsidiaries (A) is in compliance, in all material respects, with any and all applicable foreign, federal, state and local laws, rules, regulations, treaties, statutes and codes promulgated by any and all governmental authorities (including pursuant to the Occupational Health and Safety Act) relating to the protection of human health and safety in the workplace (“**Occupational Laws**”); (B) has received all material permits, licenses or other approvals required of it under applicable Occupational Laws to conduct its business as currently conducted; and (C) is in compliance, in all material respects, with all terms and conditions of such permit, license or approval. No action, proceeding, revocation proceeding, writ, injunction or claim is pending or, to the Company’s knowledge, threatened against the Company or any of its subsidiaries relating to Occupational Laws, and the Company does not have knowledge of any facts, circumstances or developments relating to its operations or cost accounting practices that would reasonably be expected to form the basis for or give rise to such actions, suits, investigations or proceedings.

(xxxiv) *Taxes.* The Company and each of its subsidiaries have filed all federal, state, local and foreign tax returns required to be filed through the date hereof, subject to permitted extensions, and have paid all taxes due, and no tax deficiency has been determined adversely to the Company or any of its subsidiaries, nor does the Company have any knowledge of any tax deficiencies that have been, or would reasonably be expected to be asserted against the Company, that would, in the aggregate, result in a Material Adverse Effect.

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

“**ERISA Affiliate**” means any member of the Company’s controlled group as defined in Code Section 414(b), (c), (m) or (o); and “**Foreign Benefit Plan**” means any Employee Benefit Plan established, maintained or contributed to outside of the United States or which covers any employee working or residing outside of the United States.

(xxxvi) *Accuracy of Statistical and Market Data.* The statistical and market-related data included in the Registration Statement and the Prospectus and the consolidated financial statements of the Company and its subsidiaries included or incorporated by reference in the Registration Statement and the Prospectus are based on or derived from sources that the Company believes to be reliable in all material respects.

(xxxvii) *Not an Investment Company.* Neither the Company nor any of its subsidiaries is, and as of the applicable Settlement Date and, after giving effect to the offer and sale of the Shares and the application of the proceeds therefrom as described under “Use of Proceeds” in the Registration Statement and the Prospectus, none of them will be, (i) an “investment company” or a company “controlled” by an “investment company” within the meaning of the Investment Company Act of 1940, as amended (the “**Investment Company Act**”), and the rules and regulations of the Commission thereunder, or (ii) a “business development company” (as defined in Section 2(a)(48) of the Investment Company Act).

(xxxviii) *Accuracy of Certain Summaries and Statements.* The statements set forth or incorporated by reference, as applicable, in each of the Registration Statement and the Prospectus under the caption “Description of Our Capital Stock” and in the Company’s Annual Report on Form 10-K for the year ended December 31, 2020 under the captions “Legal Proceedings” and “Certain Relationships and Related Transactions, and Director Independence”, insofar as they purport to summarize the provisions of the laws and documents referred to therein, are accurate summaries in all material respects.

(xxxix) *Registration Rights.* Except as disclosed in the Registration Statement and 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 owned or to be owned by such person. There are no contracts, agreements or understandings to require the Company to include any such securities in the securities proposed to be offered pursuant to this Agreement.

(xl) *No Other Brokers.* Neither the Company nor any of its subsidiaries is a party to any contract, agreement or understanding with any person (other than this Agreement) that would give rise to a valid claim against any of them or the Agent for a brokerage commission, finder’s fee or like payment in connection with the offering and sale of the Shares.

(xli) *No Integration.* The Company has not sold or issued any securities that would be integrated with the offering of the Shares contemplated by this Agreement pursuant to the Securities Act or the interpretations thereof by the Commission.

(xlii) *Absence of Stabilization or Manipulation.* The Company and its affiliates have not taken, directly or indirectly, any action designed to or that has constituted or that could reasonably be expected to cause or result in the stabilization or manipulation of the price of any security of the Company in connection with the offering of the Shares.

(xliii) *Exchange Act Registration and Listing of the Common Stock.* The shares of Common Stock are registered pursuant to Section 12(b) of the Exchange Act and listed on Nasdaq; the Company has taken no action designed to, or reasonably likely to have the effect of, terminating the registration of the Common Stock under the Exchange Act or delisting the Common Stock from Nasdaq, nor has the Company received any notification that the Commission or Nasdaq is contemplating terminating such registration or listing.

(xliv) *Offering Material.* The Company has not distributed and prior to any Settlement Date, will not distribute any offering material in connection with any Placement (as defined in Section 2(a)(i) below), other than any Preliminary Prospectus, the Prospectus, and any Permitted Free Writing Prospectus to which the Agent has consented.

(xlv) *Compliance with Labor Laws.* Neither the Company nor any subsidiary is in violation of or has received notice of any violation with respect to any federal or state law relating to discrimination in the hiring, promotion or pay of employees, nor any applicable federal or state wage and hour laws, nor any state law precluding the denial of credit due to the neighborhood in which a property is situated, the violation of any of which could result in a Material Adverse Effect.

(xlvi) *No Unlawful Payments.* Neither the Company nor any of its subsidiaries, nor, to the knowledge of the Company, any director, officer, agent, employee or other person associated with or acting on behalf of the Company or any of its subsidiaries, has (i) used any corporate funds for any unlawful contribution, gift, entertainment or other unlawful expense relating to political activity; (ii) made any direct or indirect unlawful payment to any foreign or domestic government official or employee from corporate funds; (iii) violated or is in violation of any provision of the U.S. Foreign Corrupt Practices Act of 1977, the Organization for Economic Co-operation and Development Convention on Bribery of Foreign Public Officials in International Business Transactions, and the rules and regulations thereunder and any other similar foreign or domestic law or regulation; or (iv) made any bribe, rebate, payoff, influence payment, kickback or other unlawful payment. The Company has instituted and maintains policies and procedures designed to ensure continued compliance with the laws and regulations referenced in clause (iii) of this paragraph.

(xlvii) *Anti-Money Laundering Compliance.* The operations of the Company and its subsidiaries are and have been conducted at all times in compliance with applicable financial recordkeeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, the money laundering statutes of all applicable jurisdictions, the rules and regulations thereunder and any applicable related or

similar rules, regulations or guidelines, issued, administered or enforced by any governmental agency (collectively, the “**Money Laundering Laws**”) and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any of its subsidiaries with respect to the Money Laundering Laws is pending or, to the knowledge of the Company, threatened.

(xlviii) OFAC.

(A) Neither the Company nor any of its subsidiaries, nor any of their directors, officers or employees, nor, to the Company’s knowledge, any agent, affiliate or representative of the Company or its subsidiaries, is an individual or entity that is, or is owned or controlled by an individual or entity that is:

(1) 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**”), nor

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

(B) Neither the Company nor any of its subsidiaries will, directly or indirectly, use the proceeds of the offering, or lend, contribute or otherwise make available such proceeds to any subsidiary, joint venture partner or other individual or entity:

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

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

(C) For the past five years, neither the Company nor any of its subsidiaries has knowingly engaged in, and is not now knowingly engaged in, any dealings or transactions with any individual or entity, or in any country or territory, that at the time of the dealing or transaction is or was the subject of Sanctions.

(xlix) *Not a Passive Foreign Investment Company*. Subject to the qualifications and assumptions set forth in the Registration Statement, the Company is not, and upon the sale of the Shares contemplated by this Agreement does not expect to become, a “passive foreign investment company” (as defined in Section 1297 of the Code, and the regulations promulgated thereunder).

(l) *No Taxes or Fees Due Upon Issuance.* No stamp, issue, registration, documentary, transfer or other similar taxes and duties, including interest and penalties, are payable on or in connection with the issuance and sale of the Shares by the Company or the execution and delivery of this Agreement.

(li) *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.

(lii) *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.

(liii) *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.

(liv) *Cybersecurity.* The Company and its subsidiaries' information technology assets and equipment, computers, systems, networks, hardware, software, websites, applications, and databases (collectively, "**IT Systems**") 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 its subsidiaries as currently conducted, and are to the Company's knowledge free and clear of all bugs, errors, defects, Trojan horses, time bombs, malware and other corruptants except as would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect. The Company and its subsidiaries have implemented and maintained commercially reasonable physical, technical and administrative controls, policies, procedures, and safeguards to maintain and protect their material confidential information and the integrity, continuous operation, redundancy and security of all IT Systems and data, including "Personal Data," used in connection with their businesses, except were the failure to do any of the foregoing would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect. "**Personal Data**" means (i) a natural person's name, street address, telephone number, e-mail address, photograph, social security number or tax identification number, driver's license number, passport number, credit card number, bank information, or customer or account number; (ii) any information which would qualify as "personally identifying information" under the Federal Trade Commission Act, as amended; (iii) "personal data" as defined by GDPR (as defined below); (iv) any information which would qualify as "protected health information" under the Health Insurance Portability and Accountability Act of 1996, as amended by the Health Information Technology for Economic and Clinical Health Act

(collectively, “**HIPAA**”); and (v) any other piece of information that allows the identification of such natural person, or his or her family, or permits the collection or analysis of any data related to an identified person’s health or sexual orientation. There have been no breaches, violations, outages or unauthorized uses of or accesses to same, except for those that have been remedied without material cost or liability or the duty to notify any other person, nor any incidents under internal review or investigations relating to the same. The Company and its subsidiaries are presently in compliance in all material respects with all applicable laws or statutes and all judgments, orders, rules and regulations of any court or arbitrator or governmental or regulatory authority, internal policies and contractual obligations relating to the privacy and security of IT Systems and Personal Data and to the protection of such IT Systems and Personal Data from unauthorized use, access, misappropriation or modification.

(lv) *Compliance with Data Privacy Laws*. The Company and its subsidiaries are, and at all prior times were, in compliance, in all material respects, with all applicable state and federal data privacy and security laws and regulations, including without limitation HIPAA, and the Company and its subsidiaries have taken commercially reasonable actions to prepare to comply with, and since May 25, 2018, have been and currently are in compliance, in all material respects, with, the European Union General Data Protection Regulation (“**GDPR**”) (EU 2016/679) (collectively, the “**Privacy Laws**”). To ensure compliance with the Privacy Laws, the Company and its subsidiaries have in place, comply with, and take appropriate steps reasonably designed to ensure compliance in all material respects with their policies and procedures relating to data privacy and security and the collection, storage, use, disclosure, handling, and analysis of Personal Data. The Company and its subsidiaries have at all times made all disclosures to users or customers required by applicable laws and regulatory rules or requirements, and none of such disclosures made or contained in any Policy have, to the knowledge of the Company, been inaccurate or in violation of any applicable laws and regulatory rules or requirements in any material respect. The Company further certifies that neither it nor any subsidiary: (i) has received notice of any actual or potential liability under or relating to, or actual or potential violation of, any of the Privacy Laws, and has no knowledge of any event or condition that would reasonably be expected to result in any such notice; (ii) is currently conducting or paying for, in whole or in part, any investigation, remediation, or other corrective action pursuant to any Privacy Law; or (iii) is a party to any order, decree, or agreement that imposes any obligation or liability under any Privacy Law.

(lvi) *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.

(lvii) *No Shutdowns or Prohibitions*. The Company has not had any product, clinical laboratory or manufacturing site (whether Company-owned or that of

a third party manufacturer for the Company's products) subject to a governmental authority (including the FDA) shutdown or import or export prohibition, nor received any FDA Form 483 or other governmental authority notice of inspectional observations, "warning letters," "untitled letters," requests to make changes to the Company's products, processes or operations, or similar correspondence or notice from the FDA or other governmental authority alleging or asserting material noncompliance with any applicable Health Care Laws; provided, however, that, with respect to third-party clinical laboratories or manufacturers, the foregoing is limited only to such regulatory actions or prohibitions that are directly related to the Company's products or product candidates or any other service provided to the Company or that would result in a Material Adverse Effect. To the Company's knowledge, neither the FDA nor any other governmental authority is considering any such action.

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 Nasdaq (other than a day on which Nasdaq 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 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 deemed to be an "at the market offering" as defined in Rule 415(a)(4) under the Securities Act, including sales made directly on or through an applicable stock exchange. Subject to the terms of any Placement Notice, the Agent may also sell Shares in negotiated transactions at market prices prevailing at the time of sale or at prices related to such prevailing market prices and/or any other method permitted by law, 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, and the Net Proceeds payable to the Company.

(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, 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, 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 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 and sale under the

currently effective 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 certificate of designation or (iii) the aggregate number or aggregate dollar amount of shares of Common Stock for which the Company has filed any Prospectus Supplement in connection with the Shares (the lesser of (i), (ii) and (iii), 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.

(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.

(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 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 (which will include three complete manually signed copies of the Registration Statement and all consents and exhibits filed therewith), 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; provided, however, that such obligation to furnish such copies shall not apply to any filing available via EDGAR.

(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.

(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 offering 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) all 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 reasonable and documented filing fees and 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 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 reasonable and documented out-of-pocket expenses, including reasonable and documented fees and disbursements of the Agent's counsel actually incurred in an amount which taken together with the fees and disbursements of Agent's counsel incurred pursuant to (iv) and (vi) 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 disclosed in the Prospectus.

(i) *Restrictions on Future Sales.* During the term of this Agreement, 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, in each case during the period beginning on the second Trading Day immediately prior to the date on which any Placement Notice is delivered to the Agent hereunder and ending on the earlier of (x) the second Trading Day immediately following the Settlement Date with respect to Shares sold pursuant to such Placement Notice and (y) the date the Company notifies the Agent of the withdrawal of such Placement Notice, provided, however, that such restrictions will not be required in connection with: (i) the registration of the Shares and the sales through the Agent pursuant to this Agreement, (ii) sales of shares through any dividend reinvestment and stock purchase plan of the Company, (iii) sales of shares of restricted stock, restricted stock units and options granted pursuant to employee benefit plans and agreements existing as of the date hereof, and the Common Stock issuable upon the exercise of such outstanding options or vesting of such restricted stock units, and (iv) the issuance of shares pursuant to the exercise of warrants options or other derivative securities or securities convertible into or exchangeable for shares of Common Stock outstanding as of the date hereof and disclosed in the Registration Statement and Prospectus, (v) the issuance of shares of Common Stock or any securities convertible into or exchangeable for, or any options or rights to purchase or acquire, Common Stock as consideration for mergers, acquisitions, other business combinations or joint ventures or strategic alliances, including without limitation, in-licensing and out-licensing agreements, occurring after the date of this Agreement which are not for the primary purpose of raising capital and the filing of any related registration statements, and (vi) the filing of registration statements on Form S-8, provided, that, in the case of each of (ii) through (vi), the Company provides the Agent at least two business days' prior written notice specifying the nature of the proposed sale and the date of such proposed sale, so as to permit the Agent to suspend activity under this Agreement for such period of time as requested by the Company.

(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.* Except as contemplated herein, 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.* 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) 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) Orrick Herrington & Sutcliffe 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 form and substance reasonably satisfactory to the Agent; provided however, only a negative assurance letter of such counsel shall be required for each subsequent Representation Date.

(ii) Each of Cooley LLP and Dentons U.S. LLP, intellectual property and patent counsel for the Company, to furnish to the Agent the opinions 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 opinions of counsel shall only be required for the first Settlement Date.

Notwithstanding the foregoing, the requirement to provide counsel opinions under this Section 3(o) shall be 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 (including the opinions pursuant to Section 3(o) if not delivered on the date of the prior Form 10-K), comfort letter, certificates and documents that would be delivered on a Representation Date to be delivered.

(p) *Representation Date and Comfort Letter.* 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 EisnerAmper 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, 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 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. Notwithstanding the foregoing, the requirement to provide a comfort letter from the Accountants under this Section 3(p) shall be 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 the comfort letter under this Section 3(p), then before the Agent sells any Shares pursuant to Section 2(a), the Company shall cause the comfort letter that would be delivered on a Representation Date to be delivered.

(q) *Representation Date and Representation Certificate.* 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 the chief executive officer.

(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, the net proceeds to the Company and the compensation paid by 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 Nasdaq.

(t) *Notice of Changes.* At any time during the term of this Agreement, as supplemented from time to time, 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 any opinion, certificate, letter and other document provided to the Agent pursuant to this Section 3.

(u) *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.

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 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; (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 any the Prospectus, contains an untrue statement of fact which, in the Agent's opinion, is material, or omits to state a fact which, in the Agent's 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 change in the 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) *No Rating Downgrade.* On or after each Applicable Time (i) no downgrading shall have occurred in the rating accorded any of the Company's securities by any "nationally recognized statistical organization," as that term is defined by the Commission for purposes of Rule 436(g) (2) under the Securities Act, and (ii) no such organization shall have publicly announced that it has under surveillance or review, with possible negative implications, its rating of any of the Company's securities.

(f) *Compliance with Certain Obligations.* The Company shall have performed each of its obligations under Section 3(o) – 3(q).

(g) *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 Mintz, Levin, Cohn, Ferris, Glovsky & Popeo P.C., 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 Mintz, Levin, Cohn, Ferris, Glovsky & Popeo P.C. 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.

(h) *Representation Certificate.* On or prior to the first Placement Notice, the Agent shall have received the Representation Certificate in form and substance satisfactory to the Agent and its counsel.

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

(j) *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.

(k) *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 satisfactory in form and substance to the Agent and the Agent's counsel. 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,

(ii) any inaccuracy in the representations and warranties of the Company contained herein;

(iii) 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);

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

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 (iv) 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.

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 and documented 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 will indemnify and hold harmless the Company against any losses, claims, damages or liabilities to which the Company 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 first sentence of the sixth paragraph and in the ninth paragraph under the caption "Plan of Distribution" in the Prospectus, and will reimburse the Company for any legal or other expenses reasonably incurred by the Company in connection with investigating or defending against any such loss, claim, damage, liability or action.

(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.

(b) The Agent shall have the right, by giving 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 earlier to occur of 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@pjc.com; and (ii) the Company at 611 Gateway Blvd., Suite 710, South San Francisco, CA 94080, Attention: Nassim Usman, Chief Executive Officer; 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. 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. Counterparts may be delivered via facsimile or electronic mail (including, without limitation, “pdf”, “tif” or “jpg”) and 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. This Agreement constitutes the entire agreement of the parties to this Agreement and supersedes all prior written or oral and all contemporaneous oral agreements, understandings and negotiations with respect to the subject matter hereof. This Agreement may not be amended or modified unless in writing by all of the parties hereto, and no condition herein (express or implied) may be waived unless waived in writing by each party whom the condition is meant to benefit.

[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,

Catalyst Biosciences, Inc.

By: /s/ Nassim Usman, Ph.D

Name: Nassim Usman, Ph.D.

Title: President and Chief Executive Officer

Confirmed as of the date first above mentioned.

PIPER SANDLER & CO.

By: /s/ Neil Riley

Name: Neil Riley

Title: Managing Director

SCHEDULE 1

FORM OF PLACEMENT NOTICE

No Facsimile and No Voicemail

From: Catalyst Biosciences, Inc.

To: Piper Sandler & Co.

Attention:

Neil A. Riley
Neil.Riley@psc.com

Michael W. Bassett
Michael.Bassett@psc.com

Connor N. Anderson
Connor.Anderson@psc.com

Tom Wright
Thomas.Wright@psc.com

Jay A. Hershey
Jay.Hershey@psc.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 Catalyst Biosciences, Inc. (the “**Company**”), and Piper Sandler & Co. (“**Agent**”) dated October 15, 2021 (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

Catalyst Biosciences, Inc.

Nassim Usman
nusman@catbio.com

Seline Miller
smiller@catbio.com

Piper Sandler & Co.

Neil A. Riley
Neil.Riley@psc.com

Michael W. Bassett
Michael.Bassett@psc.com

Connor N. Anderson
Connor.Anderson@psc.com

Tom Wright
Thomas.Wright@psc.com

Jay A. Hershey
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 Catalyst Biosciences, Inc., a Delaware corporation (the “**Company**”), does hereby certify in such capacity and on behalf of the Company, pursuant to Section 3(q) of the Equity Distribution Agreement, dated October 15, 2021 (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 the certificate;
- (ii) No stop order or other order suspending the effectiveness of the Registration Statement or any part thereof or any amendment thereof or the qualification of the Shares for Registration Statement, nor suspending or preventing the use of the base prospectus, the Prospectus or any Permitted Free Writing Prospectus, has been issued, and no proceeding for that purpose has been instituted or, to the best of the Company’s knowledge, is contemplated by the Commission or any state or regulatory body;
- (iii) The Shares have been duly and validly authorized by the Company and that all corporate action required to be taken for the authorization, issuance and sale of the Shares has been validly and sufficiently taken;
- (iv) The signers of this certificate have carefully examined the Registration Statement, the base prospectus, the Prospectus and any Permitted Free Writing Prospectus, and any amendments thereof or supplements thereto (including any documents filed under the Exchange Act and deemed to be incorporated by reference into the base prospectus, the Prospectus and any Permitted Free Writing Prospectus);

(A) each part of the Registration Statement and the Prospectus, and any amendments thereof or supplements thereto (including any documents filed under the Exchange Act and deemed to be incorporated by reference into the Prospectus) contain, and contained when such part of the Registration Statement (or such amendment) became effective, all statements and information required to be included therein, each part of the Registration Statement, or any

amendment thereof, does not contain, and did not contain, when such part of the Registration Statement (or such amendment) became effective, any untrue statement of a material fact or omit to state, and did not omit to state when such part of the Registration Statement (or such amendment) became effective, any material fact required to be stated therein or necessary to make the statements therein not misleading, and the Prospectus, as amended or supplemented, does not include and did not include as of its date, or the time of first use within the meaning of the Securities Act, any untrue statement of a material fact or omit to state and did not omit to state as of its date, or the time of first use within the meaning of the Securities Act, a material fact necessary to make the statements therein, in light of the circumstances under which they were made, not misleading;

(B) at no time during the period that begins on the earlier of the date of such base prospectus, Prospectus, or Permitted Free Writing Prospectus and the date such base prospectus, Prospectus, or Permitted Free Writing Prospectus was filed with the Commission and ends on the date of this certificate did such base prospectus, Prospectus, or Permitted Free Writing Prospectus, as then amended or supplemented, include an untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading;

(C) since the date of the Equity Distribution Agreement, there has occurred no event required to be set forth in an amended or supplemented prospectus which has not been so set forth, and there has been no document required to be filed under the Exchange Act that upon such filing would be deemed to be incorporated by reference into the base prospectus, the Prospectus or any Permitted Free Writing Prospectus that has not been so filed;

(D) except as stated in the Prospectus or any Permitted Free Writing Prospectus, the Company has not incurred any material liabilities or obligations, direct or contingent, or entered into any material transactions, not in the ordinary course of business, or declared or paid any dividends or made any distribution of any kind with respect to its capital stock, and except as disclosed in the base prospectus, the Prospectus, and any Permitted Free Writing Prospectus, there has not been any change in the capital stock (other than a change in the number of outstanding Common Stock due to sales of Shares pursuant to the Equity Distribution Agreement and the issuance of shares of Common Stock upon the exercise of equity awards or warrants), or any material change in the short term or long term debt, or any Material Adverse Effect 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; and

(E) except as stated in the base prospectus, the Prospectus, and any Permitted Free Writing Prospectus, there is not pending, or, to the knowledge of the Company, threatened or contemplated, any action, suit or proceeding to which the Company is a party before or by any court or governmental agency, authority or body, or any arbitrator, which might result in a Material Adverse Effect.

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

Catalyst Biosciences, Inc.

By: _____

Name: _____

Title: _____

SCHEDULE 4

SUBSIDIARIES

Catalyst Bio, Inc. (a Delaware corporation)



Orrick, Herrington & Sutcliffe LLP
51 West 52nd Street
New York, NY 10019-6142
+1 212 506 5000
orrick.com

October 15, 2021

Catalyst Biosciences, Inc.
611 Gateway Blvd. Suite 710
South San Francisco, CA 94080

Re: *Catalyst Biosciences, Inc.*
Registration Statement on Form S-3

Ladies and Gentlemen:

We have acted as counsel for Catalyst Biosciences, Inc., a Delaware corporation (the "Company"), in connection with the offering by the Company of up to \$50,000,000 of shares of the Company's common stock, par value \$0.001 (the "Shares"), pursuant to a registration statement on Form S-3 (Registration Statement No. 333-253874) (the "Registration Statement"), filed with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Act"), the prospectus dated May 3, 2021 (the "Base Prospectus"), and the prospectus supplement dated October 15, 2021, filed with the Commission pursuant to Rule 424(b) of the rules and regulations of the Act (the "Prospectus Supplement"). The Base Prospectus and the Prospectus Supplement are collectively referred to as the "Prospectus." The Shares are to be sold by the Company in the manner described in the Registration Statement and the Prospectus.

In connection with rendering this opinion, we have examined and relied upon originals or copies, certified or otherwise identified to our satisfaction, of (i) the Fourth Amended and Restated Certificate of Incorporation of the Company, as amended through the date hereof, (ii) the Bylaws of the Company, as amended through the date hereof, (iii) certain resolutions of the Board of Directors of the Company relating to the issuance, sale and registration of the Shares, (iv) the Registration Statement, (v) the Prospectus and (vi) such corporate records of the Company, certificates of public officials, officers of the Company and other persons, and such other documents, agreements and instruments as we have deemed relevant and necessary or appropriate as a basis for the opinion set forth below.

In our examination, we have assumed the legal capacity of all natural persons, the genuineness of all signatures, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as facsimile, electronic, certified or photostatic copies, and the authenticity of the originals of such copies. In making our examination of documents executed or to be executed, we have assumed that the parties thereto, other than the Company, had or will have the power, corporate or other, to enter into and perform all obligations thereunder and have also assumed the due authorization by all requisite action, corporate or other, and the execution and delivery by such parties of

such documents and the validity and binding effect thereof on such parties. As to any facts material to the opinions expressed herein that we did not independently establish or verify, we have relied upon statements and representations of officers and other representatives of the Company and others and of public officials.

Based upon the foregoing and subject to the limitations, qualifications and assumptions set forth herein, we are of the opinion that the Shares have been duly authorized and, upon issuance, delivery and payment therefor in the manner contemplated by the Registration Statement and the Prospectus, will be validly issued, fully paid and non-assessable.

The opinion expressed herein is limited to the General Corporation Law of the State of Delaware and the federal laws of the United States of America, and we express no opinion as to the effect on the matters covered by this letter of the laws of any other jurisdictions.

We hereby consent to the filing of this opinion letter as an exhibit to the Registration Statement and to the reference to our firm under the heading "Legal Matters" in the Prospectus. In giving such consent, we do not hereby admit that we are included in the category of persons whose consent is required under Section 7 of the Act or the rules and regulations of the Commission promulgated thereunder.

Very truly yours,

/s/ Orrick, Herrington & Sutcliffe LLP

Orrick, Herrington & Sutcliffe LLP