
**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): April 6, 2021 (March 31, 2021)

CTI BIOPHARMA CORP.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

000-28386
(Commission
File Number)

91-1533912
(I.R.S. Employer
Identification Number)

**3101 Western Avenue, Suite 800
Seattle, Washington 98121**
(Address of principal executive offices)

Registrant's telephone number, including area code: (206) 282-7100

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, par value \$0.001	CTIC	The Nasdaq Stock Market LLC

- Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 or Rule 12b-2 of the Securities Exchange Act of 1934.
 - If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.
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Item 1.01. Entry into a Material Definitive Agreement

On March 31, 2021, CTI BioPharma Corp. (the “Company”) entered into an underwriting agreement (the “Underwriting Agreement”) with Stifel Nicolaus & Company, Incorporated and JMP Securities LLC (the “Representatives”), as representatives of the underwriters named therein (the “Underwriters”), relating to the offer and sale (the “Offering”) of 14,260,800 shares of the Company’s common stock, par value \$0.001 per share (the “Common Stock”), at a public offering price of \$2.50 per share, and 600 shares of the Company’s Series X1 convertible preferred stock, par value \$0.001 per share (the “Series X1 Preferred Stock”), at a public offering price of \$25,000 per share. In addition, the Company granted the Underwriters a 30-day option to purchase up to an additional 2,139,120 shares of its Common Stock on the same terms and conditions (the “Option”). On April 5, 2021, the Underwriters exercised the Option in full.

The aggregate gross proceeds to the Company from the Offering and the Option are approximately \$56.0 million, before deducting underwriting discounts and estimated offering expenses.

The securities described above were issued pursuant to the Company’s effective shelf registration statement on Form S-3 (File No. 333-251161) (the “Registration Statement”), filed with the Securities and Exchange Commission (the “SEC”) on December 7, 2020 and declared effective on December 15, 2020. On March 31, 2021, the Company filed a prospectus supplement with the SEC in connection with the Offering. The Offering and the Option closed on April 6, 2021.

In the Underwriting Agreement, the Company agreed to indemnify the Underwriters against certain liabilities, including liabilities under the Securities Act of 1933, as amended, or to contribute payments that the Underwriters may be required to make because of such liabilities. The foregoing description of the Underwriting Agreement is not complete and is qualified in its entirety by references to its full text, a copy of which is filed as Exhibit 1.1 to this Current Report on Form 8-K and incorporated by reference herein.

A copy of the opinion of Gibson, Dunn & Crutcher LLP relating to the validity of the securities issued in the Offering is filed herewith as Exhibit 5.1.

Item 5.03. Amendments to Articles of Incorporation or Bylaws; Change in Fiscal Year.

On April 5, 2021, the Company filed the Certificate of Designation of Preferences, Rights and Limitations of Series X1 Convertible Preferred Stock (the “Certificate of Designation”) with the Secretary of State of the State of Delaware, in connection with an Offering. The Certificate of Designation provides for the issuance of shares of the Company’s Series X1 Preferred Stock.

In the event of the Company’s liquidation, dissolution or winding up, holders of Series X1 Preferred Stock will participate *pari passu* with any distribution of proceeds to holders of the Company’s Common Stock. Holders of Series X1 Preferred Stock are entitled to receive dividends on shares of Series X1 Preferred Stock equal (on an as-converted to Common Stock basis, without regard to the Beneficial Ownership Limitation (as defined in the Certificate of Designation)) to and in the same form as dividends actually paid on shares of Common Stock, plus an additional amount equal to any dividends declared but unpaid on such shares, before any payments shall be made or any assets distributed to holders of any class of Junior Securities (as defined in the Certificate of Designation).

Shares of Series X1 Preferred Stock generally have no voting rights, except as otherwise expressly provided in the Certificate of Designation or as otherwise required by law. However, as long as any shares of Series X1 Preferred Stock are outstanding, the Company shall not, without the affirmative vote of the holders of a majority of the then outstanding shares of Series X1 Preferred Stock, (i) alter or change adversely the powers, preferences or rights given to the Series X1 Preferred Stock or alter or amend this Certificate of Designation, amend or repeal any provision of, or add any provision to, the Certificate of Incorporation or bylaws of the Company, or file any articles of amendment, certificate of designations, preferences, limitations and relative rights of any series of preferred stock, if such action would adversely alter or change the preferences, rights, privileges or powers of, or restrictions provided for the benefit of the Series X1 Preferred Stock, regardless of whether any of the foregoing actions shall be by means of amendment to the Certificate of Incorporation or by merger, consolidation or otherwise, (ii) issue further shares of Series X1 Preferred Stock or increase or decrease (other than by conversion) the number of authorized shares of Series X1 Preferred Stock, or (iii) enter into any agreement with respect to any of the foregoing.

Each share of Series X¹ Preferred Stock is convertible into shares of Common Stock at any time at the option of the holder thereof, into the number of shares of Common Stock determined with reference to the Conversion Ratio (as defined in the Certificate of Designation), subject to certain limitations, including that a holder of Series X¹ Preferred Stock is prohibited from converting shares of Series X¹ Preferred Stock into shares of Common Stock if, as a result of such conversion, such holder, together with its affiliates, would own more than 9.99% of the total number of shares of Common Stock issued and outstanding immediately after giving effect to such conversion.

The foregoing description of the Series X¹ Preferred Stock does not purport to be complete and is qualified in its entirety by reference to the Certificate of Designation, a copy of which is filed as Exhibit 3.1 to this Current Report on Form 8-K and is incorporated herein by reference.

Item 9.01. Financial Statements and Exhibits.

(d) Exhibits

<u>Exhibit No.</u>	<u>Description</u>
1.1	Underwriting Agreement by and among the Company and the Representatives, dated as of March 31, 2021
3.1	Certificate of Designation for Series X¹ Convertible Preferred Stock
5.1	Opinion of Gibson, Dunn & Crutcher LLP
23.1	Consent of Gibson, Dunn & Crutcher LLP (contained in Exhibit 5.1)
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

SIGNATURES

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

CTI BioPharma Corp.

Date: April 6, 2021

By: /s/ David H. Kirske
Name: David H. Kirske
Title: Chief Financial Officer

14,260,800 Shares of Common Stock
600 Shares of Series X¹ Preferred Stock

CTI BIOPHARMA CORP.

UNDERWRITING AGREEMENT

March 31, 2021

STIFEL, NICOLAUS & COMPANY, INCORPORATED
JMP SECURITIES LLC

As representative of the several Underwriters
named in Schedule I hereto

c/o Stifel, Nicolaus & Company, Incorporated
787 Seventh Ave, 12th Floor
New York, NY 10019

c/o JMP Securities LLC
600 Montgomery Street, Suite 1100
San Francisco, CA 94111

Ladies and Gentlemen:

CTI BioPharma Inc., a Delaware corporation (the "Company"), proposes to issue and sell to the several underwriters named in Schedule I hereto (the "Underwriters") for whom you are acting as representatives (the "Representative") (i) an aggregate of 14,260,800 shares (the "Common Shares") of the common stock, par value \$0.001 per share, of the Company ("Common Stock") and (ii) an aggregate of 600 shares (the "Preferred Shares" and, together with the Common Shares, the "Firm Shares") of the Series X¹ Preferred Stock, par value \$0.001 per share, of the Company (the "Preferred Stock"). The Company also proposes to sell to the several Underwriters at the option of the Underwriters, up to an additional 2,139,120 shares of Common Stock (the "Option Shares"). The Firm Shares and the Option Shares are hereinafter referred to collectively as the "Shares."

The Company confirms as follows its agreements with the Representative and the several other Underwriters.

1. The Company represents and warrants to, and agrees with, each of the Underwriters that, as of the date hereof and as of the Closing Date and each Option Closing Date, if any:

(i) A registration statement on Form S-3 (File No. 333-251161) in respect of the Shares and one or more pre-effective amendments thereto (together, the "Initial Registration Statement") have been filed with the U.S. Securities and Exchange Commission (the "Commission"); the Initial Registration Statement and any post-effective amendment thereto, each in the form heretofore delivered to you, have been declared effective by the Commission in such form; other than a registration statement, if any, increasing the size of the offering (a "Rule 462(b) Registration Statement"), filed pursuant to Rule 462(b) under the Securities Act of 1933, as amended (the "Securities Act"), which became effective upon filing, no other document with respect to the Initial Registration Statement has heretofore been filed with the Commission; no stop order suspending the effectiveness of the Initial Registration Statement, any post-effective amendment thereto or the Rule 462(b) Registration Statement, if any, has been issued, no proceeding for that purpose has been initiated or threatened by the Commission and any request on the part of the Commission for additional information from the Company has been satisfied in all material respects; any preliminary prospectus included in the Initial Registration Statement, as originally filed or as part of any amendment thereto, or filed with the Commission pursuant to Rule 424(a) of the rules and regulations of the Commission under the Securities Act is hereinafter called a "Preliminary Prospectus"; the various parts of the Initial Registration Statement and the Rule 462(b) Registration Statement, if any, including all schedules and exhibits thereto and including the information contained in the form of final prospectus filed with the Commission pursuant to Rule 424(b) under the Securities Act and deemed by virtue of Rule 430A under the Securities Act to be part of the Initial Registration Statement at the time it was declared effective or such part of the Rule 462(b) Registration Statement, if any, became or hereafter becomes effective, each as amended at the time such part of the Initial Registration Statement became effective, are hereinafter collectively called the "Registration Statement"; the Preliminary Prospectus relating to the Shares that was included in the Registration Statement immediately prior to the Applicable Time (as defined in Section 1(a)(iii) hereof) is hereinafter called the "Pricing Prospectus"; such final prospectus, in the form first filed pursuant to Rule 424(b) under the Securities Act, is hereinafter called the "Prospectus"; and any "issuer free writing prospectus" as defined in Rule 433 under the Securities Act relating to the Shares is hereinafter called an "Issuer Free Writing Prospectus"; and all references to the Registration Statement, any Preliminary Prospectus, the Pricing Prospectus, the Prospectus, any Issuer Free Writing Prospectus or any amendment or supplement to any of the foregoing shall be deemed to include the copy filed with the Commission pursuant to its Electronic Data Gathering, Analysis and Retrieval system ("EDGAR").

(ii) (1) at the respective times the Initial Registration Statement, any Rule 462(b) Registration Statement and any post-effective amendments thereto became effective and at the Closing Date (as defined herein) (and, if any Option Shares are purchased, at each Option Closing Date) (as defined herein), the Initial Registration Statement, any Rule 462(b) Registration Statement and any amendments and supplements thereto complied and will comply in all material respects with the requirements of the Securities Act and the rules and regulations of the Commission thereunder (the "Rules and Regulations") and did not and will not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading, and (2) at the time the Prospectus or any amendments or supplements thereto were issued and at the Closing Date (and, if any Option Shares are purchased, at each Option Closing Date), neither the Prospectus nor any amendment or supplement thereto included or will include an untrue statement of a material fact or omitted or will omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided, that the representations and warranties in clauses (1) and (2) above shall not apply to statements in or omissions from the Registration Statement or the Prospectus made in reliance upon and in strict conformity with information furnished to the Company in writing by any Underwriter through the Representative expressly for use in the Registration Statement or the Prospectus, it being understood and agreed that the only such information provided by any Underwriter is that described as such in Section 9(b) hereof. No order preventing or suspending the use of any Preliminary Prospectus, the Pricing Prospectus or any Issuer Free Writing Prospectus has been issued by the Commission. No document has been prepared or delivered in reliance on Rule 434 under the Securities Act;

Each Preliminary Prospectus, Pricing Prospectus, Issuer Free Writing Prospectus and the Prospectus filed as part of the Initial Registration Statement as originally filed or as part of any amendment thereto, or filed pursuant to Rule 424 under the Securities Act, complied when so filed in all material respects with the requirements of the Securities Act and the Rules and Regulations and each Preliminary Prospectus, Pricing Prospectus, Issuer Free Writing Prospectus and the Prospectus delivered to the Underwriters for use in connection with this offering was identical to the electronically transmitted copies thereof filed with the Commission pursuant to EDGAR, except to the extent permitted by Regulation S-T;

(iii) For the purposes of this Agreement, the "Applicable Time" is 9:00 P.M. (Eastern time) on the date of this Agreement; the Pricing Prospectus as supplemented by the Issuer Free Writing Prospectuses, Written Testing-the-Waters Communications (as hereinafter defined) and other documents listed in Schedule II hereto, taken together (collectively, the "Pricing Disclosure Package") as of the Applicable Time, did not include any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; and each Issuer Free Writing Prospectus and/or Written Testing-the-Waters Communication listed on Schedule II hereto does not conflict with the information contained in the Registration Statement, the Pricing Prospectus or the Prospectus and each such Issuer Free Writing Prospectus and/or Written Testing-the-Waters Communication, as supplemented by and taken together with the Pricing Disclosure Package as of the Applicable Time, did not include any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided, however, that this representation and warranty shall not apply to statements or omissions made in an Issuer Free Writing Prospectus or Written Testing-the-Waters Communication in reliance upon and in strict conformity with information furnished in writing to the Company by an Underwriter through the Representative expressly for use therein. "Testing-the-Waters Communication" means any oral or written communication with potential investors undertaken in reliance on Section 5(d) of the Securities Act;

(iv) The Company has filed a registration statement pursuant to the Securities Exchange Act of 1934, as amended (the “Exchange Act”), to register the Common Stock and the Preferred Stock, and such registration statement has been declared effective; At the time of filing the Initial Registration Statement the Company was not and is not an “ineligible issuer,” as defined under Rule 405 under the Securities Act;

(v) The Company has been duly incorporated and is validly existing as a corporation in good standing under the laws of the State of Delaware, with power and authority (corporate and other) to own, lease and operate its properties and conduct its business as described in the Pricing Prospectus and to enter into and perform its obligations under this Agreement, and has been duly qualified as a foreign corporation for the transaction of business and is in good standing under the laws of each other jurisdiction in which it owns or leases properties or conducts any business so as to require such qualification, except where the failure so to qualify or be in good standing would not have a material adverse effect on the Company and its subsidiaries, considered as one enterprise;

(vi) Each subsidiary of the Company (each a “Subsidiary”) has been duly incorporated (or organized) and is validly existing as a corporation (or other organization) in good standing under the laws of the jurisdiction of its incorporation (or organization), with power and authority to own, lease and operate its properties and conduct its business as described in the Pricing Prospectus, and has been duly qualified as a foreign corporation (or other organization) for the transaction of business and is in good standing under the laws of each other jurisdiction in which its owns or leases properties or conducts any business so as to require such qualification, except where the failure so to qualify or be in good standing would not have a material adverse effect on the Company and the Subsidiaries, considered as one enterprise; all of the issued and outstanding capital stock (or other ownership interests) of each Subsidiary has been duly and validly authorized and issued, is fully paid and non-assessable and is owned by the Company, directly or through Subsidiaries, free and clear of any security interest, mortgage, pledge, lien, encumbrance, claim or equity;

(vii) The Company has an authorized capitalization as set forth in the Pricing Prospectus, and all of the issued and outstanding shares of capital stock of the Company have been duly and validly authorized and issued, are fully paid and non-assessable and conform to the descriptions thereof contained in the Pricing Prospectus; and none of the issued and outstanding shares of capital stock of the Company are subject to any preemptive or similar rights;

(viii) The Shares have been duly and validly authorized and, when issued and delivered to and paid for by the Underwriters in accordance with the terms of this Agreement, will be duly and validly issued and fully paid and non-assessable and will conform to the descriptions thereof contained in the Prospectus; and the issuance of such Shares is not subject to any preemptive or similar rights;

(ix) This Agreement has been duly authorized, executed and delivered by the Company;

(x) At all times after receipt of stockholder approval to increase the Company's shares of authorized Common Stock, the Company will reserve and keep available out of its authorized and unissued shares of Common Stock for the sole purpose of issuance upon conversion of the Preferred Stock, free from preemptive rights or any other actual contingent purchase rights of persons other than the holders of the Preferred Stock, not less than such aggregate number of shares of the Common Stock as shall be issuable upon the conversion of all outstanding shares of the Preferred Stock;

(xi) The issue and sale of the Shares, the execution of this Agreement by the Company and the compliance by the Company with all of the provisions of this Agreement and the consummation of the transactions herein contemplated will not (A) conflict with or result in a breach or violation of any of the terms or provisions of, or constitute a default under, any indenture, mortgage, deed of trust, loan agreement or other agreement or instrument to which the Company or any of the Subsidiaries is a party or by which the Company or any of the Subsidiaries is bound or to which any of the property or assets of the Company or any of the Subsidiaries is subject, (B) result in any violation of the provisions of the certificate or articles of incorporation or by-laws (or other organization documents) of the Company or any of the Subsidiaries or (C) result in the violation of any statute or any order, rule or regulation of any court or governmental agency or body having jurisdiction over the Company or any of the Subsidiaries or any of their properties, except in the case of clauses (A) and (C) as would not have a material adverse effect on the general affairs, business, prospects, management, financial position, shareholders' equity or results of operations of the Company and the Subsidiaries, considered as one enterprise; and no consent, approval, authorization, order, registration or qualification of or with any such court or governmental agency or body is required for the issue and sale of the Shares or the consummation by the Company of the transactions contemplated by this Agreement, except the registration under the Securities Act of the Shares and such consents, approvals, authorizations, registrations or qualifications as may be required by the Nasdaq Stock Market LLC or FINRA or under state securities or Blue Sky laws in connection with the purchase and distribution of the Shares by the Underwriters;

(xii) Ernst & Young LLP, who have certified certain financial statements of the Company and the Subsidiaries are independent public accountants as required by the Securities Act and the Rules and Regulations. The financial statements, together with related schedules and notes, included in the Registration Statement and the Pricing Prospectus comply in all material respects with the requirements of the Securities Act and present fairly the consolidated financial position, results of operations and changes in financial position of the Company and the Subsidiaries on the basis stated in the Registration Statement at the respective dates or for the respective periods to which they apply; such statements and related schedules and notes have been prepared in accordance with generally accepted accounting principles consistently applied throughout the periods involved, except as disclosed therein; and financial data included in the Pricing Prospectus present fairly the information shown therein and have been compiled on a basis consistent with that of the financial statements included in the Registration Statement. 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;

(xiii) Neither the Company nor any Subsidiary has sustained since the date of the latest audited financial statements included in the Pricing Prospectus any material 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, otherwise than as set forth or contemplated in the Pricing Prospectus; and, since the respective dates as of which information is given in the Registration Statement and the Pricing Prospectus, (1) there has not been any material change in the capital stock or long-term debt of the Company or any of the Subsidiaries, (2) there has not been any material adverse change, or any development involving a prospective material adverse change, in or affecting the general affairs, business, prospects, management, financial position, shareholders' equity or results of operations of the Company and the Subsidiaries, considered as one enterprise, (3) there have been no transactions entered into by, and no obligations or liabilities, contingent or otherwise, incurred by the Company or any of the Subsidiaries, whether or not in the ordinary course of business, which are material to the Company and the Subsidiaries, considered as one enterprise or (4) there has been no dividend or distribution of any kind declared, paid or made by the Company on any class of its capital stock, in each case, otherwise than as set forth or contemplated in the Pricing Prospectus;

(xiv) Neither the Company nor any of the Subsidiaries is (1) in violation of its certificate or articles of incorporation or bylaws (or other organization documents) or (2) in violation of any law, ordinance, administrative or governmental rule or regulation applicable to the Company or any of the Subsidiaries, or (3) in violation of any decree of any court or governmental agency or body having jurisdiction over the Company or any of the Subsidiaries, or (4) in default in the performance of any obligation, agreement or condition contained in any bond, debenture, note or any other evidence of indebtedness or in any agreement, indenture, lease or other instrument to which the Company or any of the Subsidiaries is a party or by which any of them or any of their respective properties may be bound, except, in the case of clauses (2), (3) and (4), where any such violation or default, individually or in the aggregate, would not have a material adverse effect on the general affairs, business, prospects, management, financial position, shareholders' equity or results of operations of the Company and the Subsidiaries, considered as one enterprise;

(xv) Each of the Company and each Subsidiary has good and marketable title to all real and personal property owned by it, in each case free and clear of all liens, encumbrances and defects except such as are described in the Pricing Prospectus or such as do not materially affect the value of such property and do not interfere with the use made and proposed to be made of such property by the Company or any Subsidiary; and any real property and buildings held under lease by the Company or any Subsidiary are held under valid, subsisting and enforceable leases with such exceptions as are not material and do not interfere with the use made and proposed to be made of such property and buildings by the Company or any Subsidiary;

(xvi) Other than as set forth in the Pricing Prospectus, there are no legal or governmental proceedings pending to which the Company or any of the Subsidiaries is a party or of which any property of the Company or any of the Subsidiaries is the subject which, if determined adversely to the Company or the Subsidiary, individually or in the aggregate, would have or may reasonably be expected to have a material adverse effect on the general affairs, business, prospects, management, financial position, shareholders' equity or results of operations of the Company and the Subsidiaries, considered as one enterprise, or would prevent or impair the consummation of the transactions contemplated by this Agreement, or which are required to be described in the Registration Statement or the Pricing Prospectus; and, to the best of the Company's knowledge, no such proceedings are threatened or contemplated by governmental authorities or others;

(xvii) The Company and the Subsidiaries possess all permits, licenses, approvals, consents and other authorizations (collectively, “Permits”) issued by the appropriate federal, state, local or foreign regulatory agencies or bodies necessary to conduct the businesses now operated by them; the Company and the Subsidiaries are in compliance with the terms and conditions of all such Permits and all of the Permits are valid and in full force and effect, except, in each case, where the failure so to comply or where the invalidity of such Permits or the failure of such Permits to be in full force and effect, individually or in the aggregate, would not have a material adverse effect on the general affairs, business, prospects, management, financial position, shareholders’ equity or results of operations of the Company and the Subsidiaries, considered as one enterprise; and neither the Company nor any Subsidiary has received any notice of proceedings relating to the revocation or material modification of any such Permits;

(xviii) Neither the Company nor any of its Subsidiaries has received any unresolved United States Food and Drug Administration of the U.S. Department of Health and Human Services (the “FDA”) Form 483, notice of adverse filing, warning letter, untitled letter or other correspondence or notice from the FDA, or any other court or arbitrator or federal, state, local, or foreign governmental or regulatory authority, alleging or asserting noncompliance with the Federal Food, Drug and Cosmetic Act (21 U.S.C § 301 et seq.) (the “FDCA”). The Company, each of its Subsidiaries and the directors, officers, employees and agents of the Company and each of its Subsidiaries are and have been in material compliance with applicable health care laws, including without limitation, the FDCA, the federal Anti-Kickback Statute (42 U.S.C. § 1320a-7b(b)), the civil False Claims Act (31 U.S.C. § 3729 et seq.), the criminal False Claims Law (42 U.S.C. § 1320a-7b(a)), the Civil Monetary Penalties Law (42 U.S.C. § 1320a-7a), the Health Insurance Portability and Accountability Act of 1996 (42 U.S.C. § 1320d et seq.), as amended by the Health Information Technology for Economic and Clinical Health Act of 2009 (42 U.S.C. § 17921 et seq.) the exclusion laws (42 U.S.C. § 1320a-7), 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 Affordability Reconciliation Act of 2010, including, without limitation, the Physician Payments Sunshine Act (42 U.S.C. § 1320a-7h), and the regulation promulgated pursuant to such laws, and comparable state laws, and all other local, state, federal, national, supranational, and foreign laws, relating to the regulation of the Company (collectively, “Health Care Laws). Neither the Company nor any of its Subsidiaries has, either voluntarily or involuntarily, initiated, conducted or issued or caused to be initiated, conducted or issued, any recall, market withdrawal or replacement, safety alert, post-sale warning, “dear doctor” letter, or other notice or action relating to the alleged lack of safety or efficacy of any product or any alleged product defect or violation and, to the Company’s knowledge, no third-party has initiated or conducted any such notice or action. Neither the Company nor any of its officers, directors, employees, or agents has been or is currently excluded from participation in the Medicare and Medicaid programs or any other state or federal health care program;

(xix) The preclinical tests and clinical trials that are described in, or the results of which are referred to in, the Registration Statement, the Pricing Prospectus or the Prospectus were and, if still pending, are being conducted in all material respects in accordance with protocols, procedures and controls filed with the appropriate regulatory authorities for each such test or trial, as the case may be, and with standard medical and scientific research procedures; each description of the results of such tests and trials contained in the Registration Statement, the Pricing Prospectus or the Prospectus is accurate and complete in all material respects and fairly presents in all material respects the data derived from such tests and trials, and the Company and its Subsidiaries have no knowledge of any other studies or tests the results of which are inconsistent with, or otherwise call into question, the results described or referred to in the Registration Statement, the Pricing Prospectuses or the Prospectus; neither the Company nor any of its Subsidiaries has received any notices or other correspondence from the FDA or any committee thereof or from any other U.S. or foreign government or drug or medical device regulatory agency (collectively, the "Regulatory Agencies") requiring the termination, suspension or modification of any clinical trials that are described or referred to in the Registration Statement, the Pricing Prospectus or the Prospectus; and the Company and its Subsidiaries have each operated and currently are in compliance in all material respects with all applicable rules, regulations and policies of the Regulatory Agencies;

(xx) The Company and its Subsidiaries own, or have obtained valid and enforceable licenses for, the inventions, patent applications, patents, trademarks, trade names, service names, copyrights, trade secrets and other intellectual property described in the Registration Statement, the Pricing Prospectus and the Prospectus as being owned or licensed by them or which are reasonably necessary for the conduct of their respective businesses as currently conducted or as currently proposed to be conducted as disclosed in the Registration Statement, the Pricing Prospectus and the Prospectus (collectively, "Intellectual Property"). To the Company's knowledge: (i) there are no third parties who have rights to any Intellectual Property, except for rights retained by third-party licensors with respect to Intellectual Property as licensed to the Company or one or more of its Subsidiaries; and (ii) there is no material infringement by third parties of any Intellectual Property. There is no pending or, to the Company's knowledge, threatened action, suit, proceeding or claim by others: (A) challenging the Company's rights in or to any Intellectual Property, and the Company is unaware of any facts which would form a reasonable basis for any such action, suit, proceeding or claim; (B) challenging the validity, enforceability or scope of any Intellectual Property (except in rejections of patent or trademark applications in the normal course of prosecution at the United States Patent and Trademark Office and equivalent foreign patent and trademark offices that would not, individually or in the aggregate, have a material adverse effect on the Company and the Subsidiaries, considered as one enterprise), and the Company is unaware of any facts which would form a reasonable basis for any such action, suit, proceeding or claim; or (C) asserting that the Company or any of its Subsidiaries infringes or otherwise violates, or would, upon the commercialization of any product or service described in the Registration Statement, the Pricing Prospectus or the Prospectus as under development, infringe or violate, any patent, trademark, trade name, service name, copyright, trade secret or other proprietary rights of others, and the Company is unaware of any facts which would form a reasonable basis for any such action, suit, proceeding or claim. The Company and its Subsidiaries have complied in all material respects with the terms of each agreement pursuant to which Intellectual Property has been licensed to the Company or any Subsidiary, and all such agreements are in full force and effect. The product candidates described in the Registration Statement, the Pricing Prospectus and the Prospectus as under development by the Company or any Subsidiary fall within the scope of the claims of one or more patents owned by, or licensed to, the Company or any Subsidiary.

(xxi) No material labor dispute with the employees of the Company or the Subsidiaries exists, or, to the knowledge of the Company, is imminent. The Company is not aware of any existing or imminent labor disturbance by the employees of any of its or any Subsidiary's principal suppliers, manufacturers, customers or contractors, which, individually or in the aggregate, may reasonably be expected to result in a material adverse effect on the general affairs, business, prospects, management, financial position, shareholders' equity or results of operations of the Company and the Subsidiaries, considered as one enterprise;

(xxii) The Company and the Subsidiaries are insured by insurers of recognized financial responsibility against such losses and risks and in such amounts as are prudent and customary in the businesses in which they are engaged; neither the Company nor any Subsidiary has been refused any insurance coverage sought or applied for; and the Company has no reason to believe that either it or any Subsidiary 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 have a material adverse effect on the Company and the Subsidiaries, considered as one enterprise;

(xxiii) The Company and each of its Subsidiaries have made and keep books, records and accounts, which, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company and its Subsidiaries. The Company maintains a system of internal accounting controls sufficient to provide reasonable assurance that (1) transactions are executed in accordance with management's general or specific authorizations; (2) transactions are recorded as necessary to permit preparation of financial statements in conformity with generally accepted accounting principles and to maintain accountability for assets; (3) access to assets is permitted only in accordance with management's general or specific authorization; (4) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences; and (5) the interactive data in eXtensible Business Reporting Language included or incorporated by reference in the Registration Statement is in conformity with generally accepted accounting principles and is updated as necessary to comply in all material respects with the requirements of the Securities Act and the Commission's rules and guidelines applicable thereto and present fairly the consolidated financial position, results of operations and changes in financial position of the Company and the Subsidiaries on the basis stated in the Registration Statement at the respective dates or for the respective periods to which they apply;

(xxiv) Since the date of the latest audited financial statements included in the Pricing Prospectus, (a) the Company has not been advised of (1) any significant deficiencies in the design or operation of internal controls that could adversely affect the ability of the Company and each of its Subsidiaries to record, process, summarize and report financial data, or any material weaknesses in internal controls and (2) any fraud, whether or not material, that involves management or other employees who have a significant role in the internal controls of the Company and each of its Subsidiaries, and (b) since that date, there has been no change in the Company's internal control over financial reporting that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting;

(xxv) The Company maintains disclosure controls and procedures (as such term is defined in Rule 13a-15 (e) of the Exchange Act) that comply with the requirements of the Exchange Act; such disclosure controls and procedures are effective;

(xxvi) All United States federal income tax returns of the Company and the Subsidiaries required by law to be filed have been filed and all taxes shown by such returns or otherwise assessed, which are due and payable, have been paid, except assessments against which appeals have been or will be promptly taken and as to which adequate reserves have been provided. The Company and the Subsidiaries have filed all other tax returns that are required to have been filed by them pursuant to applicable foreign, state, local or other law, except insofar as the failure to file such returns, individually or in the aggregate, would not result in a material adverse effect on the general affairs, business, prospects, management, financial position, shareholders' equity or results of operations of the Company and the Subsidiaries, considered as one enterprise, and have paid all taxes due pursuant to such returns or pursuant to any assessment received by the Company or any Subsidiary except for such taxes, if any, as are being contested in good faith and as to which adequate reserves have been provided. The charges, accruals and reserves on the books of the Company and the Subsidiaries in respect of any income and corporation tax liability for any years not finally determined are adequate to meet any assessments or re-assessments for additional income tax for any years not finally determined;

(xxviii) There are no statutes, regulations, documents or contracts of a character required to be described in the Registration Statement or the Pricing Prospectus or to be filed as an exhibit to the Registration Statement which are not described or filed as required;

(xxviii) Neither the Company nor any of the Subsidiaries is in violation of any statute or any rule, regulation, decision or order of any governmental agency or body or any court, domestic or foreign, relating to the use, production, 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, individually or in the aggregate, would have a material adverse effect on the general affairs, business, prospects, management, financial position, shareholders' equity or results of operations of the Company and the Subsidiaries, considered as one enterprise; and the Company is not aware of any pending investigation which might lead to such a claim;

(xxvix) Each employee benefit plan, within the meaning of Section 3(3) of the Employee Retirement Income Security Act of 1974, as amended ("ERISA"), that is maintained, administered or contributed to by the Company or any Subsidiary for employees or former employees of the Company and its affiliates has been maintained in compliance with its terms and the requirements of any applicable statutes, orders, rules and regulations, including but not limited to ERISA and the Internal Revenue Code of 1986, as amended (the "Code"), except to the extent that failure to so comply, individually or in the aggregate, would not have a material adverse effect on the general affairs, business, prospects, management, financial position, shareholders' equity or results of operations of the Company and the Subsidiaries, considered as one enterprise. No prohibited transaction, within the meaning of Section 406 of ERISA or Section 4975 of the Code has occurred with respect to any such plan excluding transactions effected pursuant to a statutory or administrative exemption;

(xxx) Neither the Company nor any of its Subsidiaries, or any director, officer, agent, employee or other person associated with or acting on behalf of the Company or any of its Subsidiaries, has (i) used any corporate funds for any unlawful contribution, gift, entertainment or other unlawful expense relating to political activity; (ii) made any direct or indirect unlawful payment to any foreign or domestic government official or employee from corporate funds, (iii) violated or is in violation of any provision of the Foreign Corrupt Practices Act of 1977, or (iv) made any bribe, unlawful rebate, payoff, influence payment, kickback or other unlawful payment;

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

(xxxii) There are no persons with registration rights or other similar rights to have securities registered pursuant to the Registration Statement or otherwise registered by the Company under the Securities Act;

(xxxiii) The Company is not and, after giving effect to the offering and sale of the Shares as contemplated herein and the application of the net proceeds therefrom as described in the Pricing Prospectus, will not be an "investment company", as such term is defined in the Investment Company Act of 1940, as amended (the "Investment Company Act");

(xxxiv) The Company has not distributed and, prior to the later to occur of the Closing Date (as defined in Section 4 hereof) and completion of distribution of the Shares, will not distribute any offering materials in connection with the offering and sale of the Shares, other than the Pricing Prospectus, the Prospectus and, subject to compliance with Section 6 hereof, any Issuer Free Writing Prospectus; and the Company has not taken and will not take, directly or indirectly, any action designed to cause or result in, or which constitutes or might reasonably be expected to constitute, the stabilization or manipulation of the price of any security of the Company to facilitate the sale of the Shares. The Company (a) has not alone engaged in any Testing-the-Waters Communication and (b) has not authorized anyone other than the Representative to engage in Testing-the-Waters Communications. The Company reconfirms that the Representative has been authorized to act on its behalf in undertaking Testing-the-Waters Communications. The Company has not distributed any Written Testing-the-Waters Communications other than those listed on Schedule II hereto. "Written Testing-the-Waters Communication" means any Testing-the-Waters Communication that is a written communication within the meaning of Rule 405 under the Securities Act;

(xxxv) The statistical and market and industry-related data included in the Pricing Prospectus and the Prospectus are based on or derived from sources which the Company believes to be reliable and accurate or represent the Company's good faith estimates that are made on the basis of data derived from such sources, and the Company has obtained the written consent to the use of such data from sources to the extent required;

(xxxvi) The Company's 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 as currently conducted, and to the knowledge of the Company are free and clear of all material bugs, errors, defects, Trojan horses, time bombs, malware and other corruptants. The Company has implemented and maintained or caused to be implemented and maintained commercially reasonable 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 all personal, personally identifiable, sensitive, confidential or regulated data ("Personal Data")) used in connection with its businesses, and there have been no breaches, violations, outages or unauthorized uses of or accesses to same, except for those (i) that would not reasonably be expected to result in a would not have a material adverse effect on the general affairs, business, prospects, management, financial position, shareholders' equity or results of operations of the Company and the Subsidiaries, considered as one enterprise or (ii) 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 is presently in material compliance 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, except as would not, individually or in the aggregate, reasonably be expected to result in a material adverse effect on the general affairs, business, prospects, management, financial position, shareholders' equity or results of operations of the Company and the Subsidiaries, considered as one enterprise. The Company has taken all necessary actions to comply with the European Union General Data Protection Regulation and all other applicable laws and regulations with respect to Personal Data that have been announced as of the date hereof as becoming effective within 12 months after the date hereof, and for which any non-compliance with same would be reasonably likely to create a material liability;

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

2. Subject to the terms and conditions herein set forth, (a) the Company agrees to sell to each of the Underwriters, and each of the Underwriters agrees, severally and not jointly, to purchase from the Company, at a purchase price per share of Common Stock of \$2.35 (the “Common Purchase Price”) and per share of Preferred Stock of \$23,500 (the “Preferred Purchase Price” and, together with the Common Purchase Price, the “Purchase Price”), the number of Firm Shares (to be adjusted by you so as to eliminate fractional shares) determined by multiplying the aggregate number of Firm Shares to be sold by the Company hereunder by a fraction, the numerator of which is the aggregate number of Firm Shares to be purchased by such Underwriter as set forth opposite the name of such Underwriter in Schedule I hereto and the denominator of which is the aggregate number of Firm Shares to be purchased by all of the Underwriters from the Company hereunder and (b) in the event and to the extent that the Underwriters shall exercise the election to purchase Option Shares as provided below, the Company agrees to sell to each of the Underwriters, and each of the Underwriters agrees, severally and not jointly, to purchase from the Company, at the Purchase Price, the number of Option Shares (to be adjusted by you so as to eliminate fractional shares) determined by multiplying the number of Option Shares as to which such election shall have been exercised by the fraction set forth in clause (a) above.

The Company hereby grants to the Underwriters the right to purchase at their election up to 2,139,120 Option Shares, at the Purchase Price. The Underwriters may exercise their option to acquire Option Shares in whole or in part from time to time only by written notice from the Representative to the Company, given within a period of 30 calendar days after the date of this Agreement and setting forth the aggregate number of Option Shares to be purchased and the date on which such Option Shares are to be delivered, as determined by the Representative but in no event earlier than the Closing Date or, unless the Representative and the Company otherwise agree in writing, earlier than two or later than ten business days after the date of such notice.

3. It is understood that the several Underwriters propose to offer the Firm Shares for sale to the public upon the terms and conditions set forth in the Prospectus.

4. The Company will deliver the Firm Shares to the Representative through the facilities of the Depository Trust Company (“DTC”) for the accounts of the Underwriters, or, at the election of the Underwriters, in certificated form, in each such case against payment of the Purchase Price therefor in Federal (same day) funds by official bank check or checks or wire transfer drawn to the order of the Company, at 10:00 A.M., New York time, on April 6, 2021, or at such other time not later than seven full business days thereafter as Stifel, Nicolaus & Company, Incorporated (“Stifel”), JMP Securities LLC (“JMP”) and the Company determine, such time being herein referred to as the “Closing Date”. For purposes of Rule 15c6-1 under the Exchange Act, the Closing Date (if later than the otherwise applicable settlement date) shall be the settlement date for payment of funds and delivery of securities for all the Firm Shares. The Firm Shares so to be delivered will be in definitive or book-entry form, in such denominations and registered in such names as the Representative requests and the certificates, if any, representing the Firm Shares will be made available for checking and packaging at a location as the Representative may designate at least 24 hours prior to the Closing Date.

Each time for the delivery of and payment for the Option Shares, being herein referred to as an “Option Closing Date”, which may be the Closing Date, shall be determined by the Representative as provided above. The Company will deliver the Option Shares being purchased on each Option Closing Date to the Representative through the facilities of DTC for the accounts of the Underwriters, against payment of the Purchase Price therefor in Federal (same day) funds by official bank check or checks or wire transfer drawn to the order of the Company at 10:00 A.M., New York time on the applicable Option Closing Date. The Option Shares so to be delivered will be in definitive or book-entry form, in such denominations and registered in such names as the Representative requests and the certificates, if any, representing the Option Shares will be made available for checking and packaging at a location as the Representative may designate at least 24 hours prior to the Option Closing Date.

5. The Company covenants and agrees with each of the Underwriters as follows:

(a) The Company, subject to Section 5(b), will comply with the requirements of Rule 430A under the Securities Act, and will notify the Representative immediately, and confirm the notice in writing, (i) when any post-effective amendment to the Registration Statement shall become effective, or any supplement to the Prospectus or any amended prospectus shall have been filed, to furnish the Representative with copies thereof, and to file promptly all material required to be filed by the Company with the Commission pursuant to Rule 433(d) under the Securities Act, (ii) of the receipt of any comments from the Commission, (iii) of any request by the Commission for any amendment to the Registration Statement or any amendment or supplement to the Prospectus or for additional information, and (iv) of the issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement or of any order preventing or suspending the use of any Preliminary Prospectus, or of the suspension of the qualification of the Shares for offering or sale in any jurisdiction, or of the initiation or threatening of any proceedings for any of such purposes. The Company will promptly effect the filings necessary pursuant to Rule 424(b) under the Securities Act and will take such steps as it deems necessary to ascertain promptly whether the form of prospectus transmitted for filing under Rule 424(b) was received for filing by the Commission and, in the event that it was not, it will promptly file such prospectus. The Company will make every reasonable effort to prevent the issuance of any stop order and, if any stop order is issued, to obtain the lifting thereof at the earliest possible moment.

(b) The Company will give the Representative notice of its intention to file or prepare any amendment to the Registration Statement (including any filing under Rule 462(b) under the Securities Act), or any amendment, supplement or revision to the Prospectus, or any Issuer Free Writing Prospectus, will furnish the Representative with copies of any such documents a reasonable amount of time prior to such proposed filing or use, as the case may be, and will not file or use any such document to which the Representative or counsel for the Underwriters shall reasonably object.

(c) The Company will use its best efforts to qualify the Shares for offering and sale under the securities laws of such jurisdictions as you may reasonably request and to comply with such laws so as to permit the continuance of sales and dealings therein in such jurisdictions for as long as may be necessary to complete the distribution of the Shares, provided that nothing in this Section 5(c) shall require the Company to qualify as a foreign corporation in any jurisdiction in which it is not already so qualified, or to file a general consent to service of process in any jurisdiction.

(d) The Company has furnished or will upon request deliver to the Representative, without charge, signed copies of the Initial Registration Statement as originally filed, any Rule 462(b) Registration Statement and of each amendment to each (including exhibits filed therewith or incorporated by reference therein) and signed copies of all consents and certificates of experts, and will also, upon your request, deliver to the Representative, without charge, a conformed copy of the Registration Statement as originally filed and of each amendment thereto (without exhibits) for each of the Underwriters. The copies of the Registration Statement and each amendment thereto furnished to the Underwriters will be identical to the electronically transmitted copies thereof filed with the Commission pursuant to EDGAR, except to the extent permitted by Regulation S-T.

(e) The Company has delivered to each Underwriter, without charge, as many written and electronic copies of each Preliminary Prospectus as such Underwriter reasonably requested, and the Company hereby consents to the use of such copies for purposes permitted by the Securities Act. The Company will furnish to each Underwriter, without charge, prior to 5:00 P.M. (Eastern time) on the business day next succeeding the date of this Agreement and from time to time thereafter during the period when the Prospectus is required to be delivered in connection with sales of the Shares under the Securities Act or the Exchange Act or in lieu thereof, the notice referred to in Rule 173(a) under the Securities Act, such number of written and electronic copies of the Prospectus (as amended or supplemented) as such Underwriter may reasonably request. The Prospectus and any amendments or supplements thereto furnished to the Underwriters will be identical to the electronically transmitted copies thereof filed with the Commission pursuant to EDGAR, except to the extent permitted by Regulation S-T.

(f) The Company will comply with the Securities Act and the Rules and Regulations so as to permit the completion of the distribution of the Shares as contemplated in this Agreement and in the Prospectus. If at any time when, in the opinion of counsel for the Underwriters, a prospectus is required to be delivered in connection with sales of the Shares under the Securities Act or the Exchange Act (or in lieu thereof, the notice referred to in Rule 173(a) under the Securities Act), any event shall occur or condition shall exist as a result of which it is necessary, in the opinion of counsel for the Underwriters or for the Company, to amend the Registration Statement or amend or supplement the Prospectus in order that the Prospectus will not include any untrue statements of a material fact or omit to state a material fact necessary in order to make the statements therein not misleading in the light of the circumstances existing at the time it (or in lieu thereof, the notice referred to in Rule 173(a) under the Securities Act) is delivered to a purchaser, or if it shall be necessary, in the opinion of either such counsel, at any such time to amend the Registration Statement or amend or supplement the Prospectus in order to comply with the requirements of the Securities Act or the Rules and Regulations, the Company will promptly prepare and file with the Commission, subject to Section 5(b), such amendment or supplement as may be necessary to correct such statement or omission or to make the Registration Statement or the Prospectus comply with such requirements, and the Company will furnish to the Underwriters such number of written and electronic copies of such amendment or supplement as the Underwriters may reasonably request. The Company will provide the Representative with notice of the occurrence of any event during the period specified above that may give rise to the need to amend or supplement the Registration Statement or the Prospectus as provided in the preceding sentence promptly after the occurrence of such event. If at any time following the distribution of any Written Testing-the-Waters Communication there occurred or occurs an event or development as a result of which such Written Testing-the-Waters Communication included or would include an untrue statement of a material fact or omitted or would omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances existing at that subsequent time, not misleading, the Company will promptly notify the Representative and will promptly amend or supplement, at its own expense, such Written Testing-the-Waters Communication to eliminate or correct such untrue statement or omission.

(g) The Company will make generally available (within the meaning of Section 11(a) of the Securities Act) to its security holders and to the Representative as soon as practicable, but not later than 45 days after the end of its fiscal quarter in which the first anniversary date of the effective date of the Registration Statement occurs, an earnings statement (in form complying with the provisions of Rule 158 under the Securities Act) covering a period of at least twelve consecutive months beginning after the effective date of the Registration Statement.

(h) The Company will use the net proceeds received by it from the sale of the Shares in the manner specified in the Pricing Prospectus under the heading "Use of Proceeds".

(i) The Company will use its best efforts to effect and maintain the listing of the Common Stock and the Preferred Stock (including the Shares) on the Nasdaq Capital Market.

(j) During a period of 90 days from the date of the Prospectus, the Company will not, without the prior written consent of Stifel and JMP, (i) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend or otherwise transfer or dispose of, directly or indirectly, any Common Stock or Preferred Stock or any securities convertible into or exercisable or exchangeable for Common Stock or Preferred Stock or (ii) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of Common Stock or Preferred Stock, whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of Common Stock or Preferred Stock or such other securities, in cash or otherwise, other than (1) the Shares to be sold hereunder, (2) the issuance of options to acquire shares of Common Stock or Preferred Stock granted pursuant to the Company's benefit plans existing on the date hereof that are referred to in the Prospectus, as such plans may be amended or, (3) the issuance of shares of Common Stock or Preferred Stock upon the exercise of any such options.

(k) The Company, during the period when the Prospectus is required to be delivered in connection with sales of the Shares under the Securities Act or the Exchange Act (or in lieu thereof, the notice referred to in Rule 173(a) under the Securities Act), will file all documents required to be filed with the Commission pursuant to the Exchange Act within the time periods required by the Exchange Act and the rules and regulations of the Commission thereunder.

(l) The Company will file with the Commission such information on Form 10-Q or Form 10-K as may be required pursuant to Rule 463 under the Securities Act.

(m) During a period of five years from the effective date of the Registration Statement, the Company will furnish to you copies of all reports or other communications (financial or other) furnished to shareholders generally, and to deliver to you as soon as they are available, copies of any reports and financial statements furnished to or filed with the Commission or any national securities exchange on which any class of securities of the Company is listed; provided, that the Company will be deemed to have furnished such reports and financial statements to the extent they are filed on EDGAR.

(n) If the Company elects to rely upon Rule 462(b) under the Securities Act, the Company will file a Rule 462(b) Registration Statement with the Commission in compliance with Rule 462(b) by 10:00 P.M., Washington, D.C. time, on the date of this Agreement, and at the time of filing either to pay to the Commission the filing fee for the Rule 462(b) Registration Statement or to give irrevocable instructions for the payment of such fee pursuant to Rule 111(b) under the Securities Act.

(o) If so requested by the Representative, the Company shall cause to be prepared and delivered, at its expense, within one business day from the effective date of this Agreement, to the Representative an “electronic Prospectus” to be used by the Underwriters in connection with the offering and sale of the Shares. As used herein, the term “electronic Prospectus” means a form of the most recent Preliminary Prospectus, any Issuer Free Writing Prospectus or the Prospectus, and any amendment or supplement thereto, that meets each of the following conditions: (i) it shall be encoded in an electronic format, satisfactory to the Representative, that may be transmitted electronically by the Representative and the other Underwriters to offerees and purchasers of the Shares, (ii) it shall disclose the same information as such paper Preliminary Prospectus, Issuer Free Writing Prospectus or the Prospectus, as the case may be; and (iii) it shall be in or convertible into a paper format or an electronic format, satisfactory to the Representative, that will allow investors to store and have continuously ready access to such Preliminary Prospectus, Issuer Free Writing Prospectus or the Prospectus at any future time, without charge to investors (other than any fee charged for subscription to the Internet generally). The Company hereby confirms that, if so requested by the Representative, it has included or will include in the Prospectus filed with the Commission an undertaking that, upon receipt of a request by an investor or his or her representative, the Company shall transmit or cause to be transmitted promptly, without charge, a paper copy of such paper Preliminary Prospectus, Issuer Free Writing Prospectus or the Prospectus to such investor or representative.

6. (a) The Company represents and agrees that, without the prior consent of the Representative, it has not made and will not make any offer relating to the Shares that would constitute a “free writing prospectus” as defined in Rule 405 under the Securities Act; each Underwriter represents and agrees that, without the prior consent of the Company and the Representative, it has not made and will not make any offer relating to the Shares that would constitute a free writing prospectus; any such free writing prospectus the use of which has been consented to by the Company and the Representative is listed on Schedule II hereto;

(b) The Company has complied and will comply with the requirements of Rule 433 under the Securities Act applicable to any Issuer Free Writing Prospectus, including timely filing with the Commission or retention where required and legending; the Company represents that it has satisfied and agrees that it will satisfy the conditions under Rule 433 under the Securities Act to avoid a requirement to file with the Commission any electronic road show;

(c) The Company agrees that if at any time following issuance of an Issuer Free Writing Prospectus any event occurred or occurs as a result of which such Issuer Free Writing Prospectus would conflict with the information in the Registration Statement, the Pricing Prospectus or the Prospectus or would include an untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in light of the circumstances then prevailing, not misleading, the Company will give prompt notice thereof to the Representative and, if requested by the Representative, will prepare and furnish without charge to each Underwriter an Issuer Free Writing Prospectus or other document which will correct such conflict, statement or omission; provided, however, that this representation and warranty shall not apply to any statements or omissions in an Issuer Free Writing Prospectus made in reliance upon and in strict conformity with information furnished in writing to the Company by an Underwriter through the Representative expressly for use therein.

7. The Company covenants and agrees with the several Underwriters that, whether or not the transactions contemplated by this Agreement are consummated, the Company will pay or cause to be paid all expenses incident to the performance of its obligations under this Agreement, including (i) the fees, disbursements and expenses of the Company's counsel, accountants and other advisors; (ii) filing fees and all other expenses in connection with the preparation, printing and filing of the Registration Statement, each Preliminary Prospectus, any Issuer Free Writing Prospectus and the Prospectus and amendments and supplements thereto and the mailing and delivering of copies thereof to the Underwriters and dealers; (iii) the cost of printing or producing this Agreement, closing documents (including any compilations thereof) and such other documents as may be required in connection with the offering, purchase, sale and delivery of the Shares; (iv) all expenses in connection with the qualification of the Shares for offering and sale under state securities laws as provided in Section 5(c), including filing fees and the reasonable fees and disbursements of counsel for the Underwriters in connection with such qualification and in connection with the Blue Sky survey, if any, not to exceed \$5,000 in the aggregate; (v) all fees and expenses in connection with listing the Common Stock (including the Common Shares) on the Nasdaq Capital Market; (vi) the filing fees incident to, and the reasonable fees and disbursements of counsel for the Underwriters in connection with, securing any required review by FINRA of the terms of the sale of the Shares not to exceed \$15,000 in the aggregate; (vii) all fees and expenses in connection with the preparation, issuance and delivery of the certificates representing the Shares to the Underwriters, including any stock or other transfer taxes and any stamp or other duties payable upon the sale, issuance or delivery of the Shares to the Underwriters; (viii) the cost and charges of any transfer agent or registrar; and (ix) the transportation and other expenses incurred by the Company in connection with presentations to prospective purchasers of Shares.

8. The several obligations of the Underwriters hereunder to purchase the Shares on the Closing Date or each Option Closing Date, as the case may be, are subject to the performance by the Company of its obligations hereunder and to the following additional conditions:

(a) The Prospectus shall have been filed with the Commission pursuant to Rule 424(b) under the Securities Act within the applicable time period prescribed for such filing by the Rules and Regulations and in accordance with Section 5(a); all material required to be filed by the Company pursuant to Rule 433(d) under the Securities Act shall have been filed with the Commission within the applicable time period prescribed for such filing by Rule 433 under the Securities Act; if the Company has elected to rely upon Rule 462(b) under the Securities Act, the Rule 462(b) Registration Statement shall have become effective by 10:00 P.M., Washington, D.C. time, on the date of this Agreement; no stop order suspending the effectiveness of the Registration Statement or any part thereof or the Prospectus or any part thereof or any Issuer Free Writing Prospectus shall have been issued and no proceeding for that purpose shall have been initiated or threatened by the Commission or any state securities commission; and all requests for additional information on the part of the Commission shall have been complied with to the Representative's reasonable satisfaction.

(b) The representations and warranties of the Company contained herein are true and correct on and as of the Closing Date or the Option Closing Date, as the case may be, as if made on and as of the Closing Date or the Option Closing Date, as the case may be, and the Company shall have complied with all agreements and all conditions on its part to be performed or satisfied hereunder at or prior to the Closing Date or the Option Closing Date, as the case may be.

(c) Subsequent to the execution and delivery of this Agreement and prior to the Closing Date or the Option Closing Date, as the case may be, there shall not have occurred any downgrading, nor shall any notice have been given of (i) any downgrading, (ii) any intended or potential downgrading or (iii) any review or possible change that does not indicate an improvement, in the rating accorded any securities of or guaranteed by the Company or any Subsidiary by any “nationally recognized statistical rating organization”, as such term is defined for purposes of Rule 436(g)(2) under the Securities Act.

(d) (i) Neither the Company nor any Subsidiary shall have sustained since the date of the latest audited financial statements included in the Pricing Prospectus any material 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, otherwise than as set forth or contemplated in the Pricing Prospectus, and (ii) since the respective dates as of which information is given in the Registration Statement and the Prospectus, (1) there shall not have been any change in the capital stock or long-term debt of the Company or any Subsidiary or (2) there shall not have been any material adverse change, or any development that would reasonably be expected to result in a prospective material adverse change, in or affecting the general affairs, business, prospects, management, financial position, shareholders’ equity or results of operations of the Company and the Subsidiaries, considered as one enterprise, the effect of which, in any such case described in clause (i) or (ii), is in the judgment of the Representative so material and adverse as to make it impracticable or inadvisable to proceed with the public offering or the delivery of the Shares being delivered at such Closing Date or Option Closing Date, as the case may be, on the terms and in the manner contemplated in the Pricing Prospectus.

(e) the Representative shall have received on and as of the Closing Date or the Option Closing Date, as the case may be, a certificate of two executive officers of the Company, at least one of whom has specific knowledge about the Company’s financial matters, satisfactory to the Representative, to the effect (1) set forth in Sections 8 (b) (with respect to the respective representations, warranties, agreements and conditions of the Company) and 8 (c), (2) that none of the situations set forth in clause (i) or (ii) of Section 8 (d) shall have occurred and (3) that no stop order suspending the effectiveness of the Registration Statement has been issued and to the knowledge of the Company, no proceedings for that purpose have been instituted or are pending or contemplated by the Commission;

(f) On the Closing Date or Option Closing Date, as the case may be, Gibson, Dunn & Crutcher LLP, counsel for the Company, shall have furnished to the Representative its favorable written opinion and negative assurance letter, dated the Closing Date or the Option Closing Date, as the case may be, each in form and substance satisfactory to counsel for the Underwriters, to such effect as counsel for the Underwriters may reasonably request.

(g) At the time of the execution of this Agreement and, if applicable, on the effective date of any post-effective amendment to the Registration Statement filed subsequent to the date of this Agreement, Ernst & Young LLP shall have furnished to the Representative a letter, dated the date of delivery thereof, in form and substance satisfactory to the Representative, containing statements and information of the type customarily included in accountants' "comfort letters" to underwriters with respect to the financial statements and certain financial information contained in the Registration Statement and the Prospectus.

(h) On the Closing Date or Option Closing Date, as the case may be, the Representative shall have received from Ernst & Young LLP a letter, dated the Closing Date or such Option Closing Date, as the case may be, to the effect that they reaffirm the statements made in the letter or letters furnished pursuant to Section 8(g), except that the specified date referred to shall be a date not more than three business days prior to the Closing Date or such Option Closing Date, as the case may be.

(i) On the Closing Date or Option Closing Date, as the case may be, Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., counsel for the Underwriters, shall have furnished to the Representative its favorable opinion and negative assurance letter, dated the Closing Date or the Option Closing Date, as the case may be, with respect to the due authorization and valid issuance of the Shares, the Registration Statement, the Prospectus and other related matters as the Representative may reasonably request, and such counsel shall have received such papers and information as they may reasonably request to enable them to pass upon such matters.

(j) The Shares to be delivered on the Closing Date or Option Closing Date, as the case may be, shall have been approved for listing on the Nasdaq Capital Market, subject to official notice of issuance.

(k) At the time of the execution of this Agreement, dated the date hereof, and as of the Closing Date or the Option Closing Date, as the case may be, the Representative shall have received a certificate of the Chief Financial Officer, in form and substance satisfactory to the Representative.

(l) On the Closing Date or Option Closing Date, as the case may be, Seed IP Law Group LLP and Phillips Ormonde Fitzpatrick, intellectual property counsels for the Company, shall have furnished to the Representative their favorable written opinions, dated the Closing Date or the Option Closing Date, as the case may be, in form and substance satisfactory to the Representative.

(m) [Reserved].

(n) The Representative shall have received “lock-up” agreements, each substantially in the form of Exhibit A hereto, from each individual listed on Schedule III hereto and such agreements shall be in full force and effect on the Closing Date or Option Closing Date, as the case may be.

(o) On or prior to the Closing Date or Option Closing Date, as the case may be, the Company shall have furnished to the Representative such further information, certificates and documents as the Representative shall reasonably request.

(p) On or after the Applicable Time there shall not have occurred any of the following: (i) a suspension or material limitation in trading in securities generally on the Nasdaq Capital Market; (ii) a suspension or material limitation in trading in the Company’s securities on the Nasdaq Capital Market; (iii) a general moratorium on commercial banking activities declared by any of Federal, Maryland or New York State authorities or a material disruption in commercial banking or securities settlement or clearance services in the United States; (iv) the outbreak or escalation of hostilities involving the United States or the declaration by the United States of a national emergency or war or (v) the occurrence of any other calamity or crisis or any change in financial, political or economic conditions in the United States or elsewhere, if the effect of any such event specified in clause (iv) or (v) in the judgment of the Representative makes it impracticable or inadvisable to proceed with the public offering or the delivery of the Shares being delivered at such Closing Date or Option Closing Date, as the case may be, on the terms and in the manner contemplated in the Prospectus;

If any condition specified in this Section 8 shall not have been fulfilled when and as required to be fulfilled, this Agreement may be terminated, subject to the provisions of Section 12, by the Representative by notice to the Company at any time at or prior to the Closing Date or Option Closing Date, as the case may be, and such termination shall be without liability of any party to any other party, except as provided in Section 12.

9. (a) The Company agrees to indemnify and hold harmless each Underwriter and each person, if any, who controls any Underwriter within the meaning of Section 15 of the Securities Act or Section 20(a) of the Exchange Act against any and all losses, liabilities, claims, damages and expenses whatsoever as incurred (including without limitation, reasonable attorneys’ fees and any and all reasonable expenses whatsoever incurred in investigating, preparing or defending against any litigation, commenced or threatened, or any claim whatsoever, and any and all amounts paid in settlement of any claim or litigation), joint or several, to which they or any of them may become subject under the Securities Act, the Exchange Act or otherwise, insofar as such losses, liabilities, claims, damages or expenses (or actions in respect thereof) arise out of or are based upon any untrue statement or alleged untrue statement of a material fact contained in the Initial Registration Statement, as originally filed or any amendment thereof, the Registration Statement, or any post-effective amendment thereof, any Preliminary Prospectus, the Pricing Prospectus or the Prospectus, or in any supplement thereto or amendment thereof, any Issuer Free Writing Prospectus, any Written Testing-the-Waters Communication, or any “issuer information” filed or required to be filed pursuant to Rule 433(d) under the Securities Act, or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided, however, that the Company will not be liable in any such case to the extent that any such loss, liability, claim, damage or expense arises out of or is based upon any such untrue statement or alleged untrue statement or omission or alleged omission made in the Initial Registration Statement, as originally filed or any amendment thereof, the Registration Statement, or any post-effective amendment thereof, any Preliminary Prospectus, the Pricing Prospectus or the Prospectus, or in any supplement thereto or amendment thereof, any Issuer Free Writing Prospectus, or any Written Testing-the-Waters Communication in reliance upon and in strict conformity with written information furnished to the Company by or on behalf of any Underwriter through Stifel and JMP expressly for use therein, it being understood and agreed that the only such information furnished by any Underwriter is the information described as such in Section 9(b) below.

(b) Each Underwriter severally, and not jointly, agrees to indemnify and hold harmless the Company, each of the directors of the Company, each of the officers of the Company who shall have signed the Registration Statement, and each other person, if any, who controls the Company within the meaning of Section 15 of the Securities Act or Section 20(a) of the Exchange Act, against any losses, liabilities, claims, damages and expenses whatsoever as incurred (including without limitation, reasonable attorneys' fees and any and all reasonable expenses whatsoever incurred in investigating, preparing or defending against any litigation, commenced or threatened, or any claim whatsoever, and any and all amounts paid in settlement of any claim or litigation), joint or several, to which they or any of them may become subject under the Act, the Exchange Act or otherwise, insofar as such losses, liabilities, claims, damages or expenses (or actions in respect thereof) arise out of or are based upon any untrue statement or alleged untrue statement of a material fact contained in the Initial Registration Statement, as originally filed or any amendment thereof, the Registration Statement, or any post-effective amendment thereof, any Preliminary Prospectus, the Pricing Prospectus or the Prospectus, or in any supplement thereto or amendment thereof, any Issuer Free Writing Prospectus or any Written Testing-the-Waters Communication, 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 any such loss, liability, claim, damage or expense arises out of or is based upon any such untrue statement or alleged untrue statement or omission or alleged omission made therein in reliance upon and in strict conformity with written information furnished to the Company by or on behalf of such Underwriter through Stifel and JMP expressly for use therein, it being understood and agreed that the only such information furnished by any Underwriter consists of the following information in the Prospectus furnished on behalf of each Underwriter: the concession figures appearing in the first paragraph under the subheading "Commissions and Discounts" under the caption "Underwriting" and the statements and information contained in first, second, third, and fourth paragraphs under the subheading, "Short Sales, Stabilizing Transactions, and Penalty Bids" under the caption "Underwriting".

(c) Promptly after receipt by an indemnified party under Section 9 (a) or 9 (b) 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 Section, notify each party against whom indemnification is to be sought in writing of the commencement thereof (but the failure so to notify an indemnifying party shall not relieve it from any liability which it may have under this Section 9). In case any such action is brought against any indemnified party, and it notifies an indemnifying party of the commencement thereof, the indemnifying party will be entitled to participate therein, and jointly with any other indemnifying party similarly notified, to the extent it may elect by written notice delivered to the indemnified party promptly after receiving the aforesaid notice from such indemnified party, to assume the defense thereof with counsel reasonably satisfactory to such indemnified party (who shall not, except with the consent of the indemnified party, be counsel to the indemnified party). Notwithstanding the foregoing, the indemnified party or parties shall have the right to employ its or their own counsel in any such case, but the fees and expenses of such counsel shall be at the expense of such indemnified party or parties unless (i) the employment of such counsel shall have been authorized in writing by one of the indemnifying parties in connection with the defense of such action, (ii) the indemnifying parties shall not have employed counsel to have charge of the defense of such action within a reasonable time after notice of commencement of the action, or (iii) such indemnified party or parties shall have reasonably concluded that there may be defenses available to it or them which are different from or additional to those available to one or all of the indemnifying parties (in which case the indemnifying parties shall not have the right to direct the defense of such action on behalf of the indemnified party or parties), in any of which events such fees and expenses shall be borne by the indemnifying parties. In no event shall the indemnifying parties be liable for fees and expenses of more than one counsel (in addition to any local counsel) separate from their own counsel for all indemnified parties in connection with any one action or separate but similar or related actions in the same jurisdiction arising out of the same general allegations or circumstances, which counsel, in the event of indemnified parties under Section 9 (a), shall be selected by Stifel and JMP. No indemnifying party shall, without the written consent of the indemnified party, effect the settlement or compromise of, or consent to the entry of any judgment with respect to, any pending or threatened action or claim in respect of which indemnification or contribution may be sought hereunder (whether or not the indemnified party is an actual or potential party to such action or claim) unless such settlement, compromise or judgment (i) includes an unconditional release of the indemnified party from all liability arising out of such action or claim and (ii) 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) If the indemnification provided for in this Section 9 is unavailable to or insufficient to hold harmless an indemnified party under Section 9 (a) or 9 (b) in respect of any losses, liabilities, claims, damages or expenses (or actions in respect thereof) referred to therein, then each indemnifying party shall contribute to the amount paid or payable by such indemnified party as a result of such losses, liabilities, claims, damages or expenses (or actions in respect thereof) in such proportion as is appropriate to reflect the relative benefits received by the Company on the one hand and the Underwriters on the other from the offering of the Shares. If, however, the allocation provided by the immediately preceding sentence is not permitted by applicable law, then each indemnifying party shall contribute to such amount paid or payable by such indemnified party in such proportion as is appropriate to reflect not only such relative benefits but also the relative fault of the Company on the one hand and the Underwriters on the other in connection with the statements or omissions which resulted in such losses, liabilities, claims, damages or expenses (or actions in respect thereof), as well as any other relevant equitable considerations. The relative benefits received by the Company on the one hand and the Underwriters on the other from the offering of the Shares 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 underwriting discounts and commissions received by the Underwriters, in each case as set forth in the table on the cover page of the Prospectus. 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 on the one hand or the Underwriters on the other and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission.

The Company and the Underwriters agree that it would not be just and equitable if contributions pursuant to this Section 9 (d) were determined by pro rata allocation (even if the Underwriters were treated as one entity for such purpose) or by any other method of allocation which does not take account of the equitable considerations referred to above in this Section 9 (d). The amount paid or payable by an indemnified party as a result of the losses, liabilities, claims, damages or expenses (or actions in respect thereof) referred to above in this Section 9 (d) shall be deemed to include any legal or other expenses reasonably incurred by such indemnified party in connection with investigating or defending any such action or claim. Notwithstanding the provisions of this Section 9 (d), no Underwriter shall be required to contribute any amount in excess of the amount by which the total price at which the Shares underwritten by it and distributed to the public were offered to the public exceeds the amount of any damages which such Underwriter has otherwise been required to pay by reason of such untrue or alleged untrue statement or omission or alleged omission.

No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. The Underwriters' obligations in this Section 9 (d) to contribute are several in proportion to their respective underwriting obligations and not joint.

(e) The obligations of the parties to this Agreements contained in this Section 9 are not exclusive and shall not limit any rights or remedies which may otherwise be available to any indemnified party at law or in equity.

10. If any Underwriter or Underwriters default in its or their obligations to purchase Shares hereunder on the Closing Date or any Option Closing Date and the aggregate number of Shares that such defaulting Underwriter or Underwriters agreed but failed to purchase does not exceed 10% of the total number of Shares that the Underwriters are obligated to purchase on such Closing Date or Option Closing Date, as the case may be, the Representative may make arrangements satisfactory to the Company for the purchase of such Shares by other persons, including any of the Underwriters, but if no such arrangements are made by such Closing Date or Option Closing Date, as the case may be, the non-defaulting Underwriters shall be obligated severally, in proportion to their respective commitments hereunder, to purchase the Shares that such defaulting Underwriters agreed but failed to purchase on such Closing Date or Option Closing Date, as the case may be. If any Underwriter or Underwriters so default and the aggregate number of Shares with respect to which such default or defaults occur exceeds 10% of the total number of Shares that the Underwriters are obligated to purchase on such Closing Date or Option Closing Date, as the case may be, and arrangements satisfactory to the Representative and the Company for the purchase of such Shares by other persons are not made within 36 hours after such default, this Agreement will terminate, subject to the provisions of Section 12, without liability on the part of any non-defaulting Underwriter or the Company, except as provided in Section 12. Nothing herein will relieve a defaulting Underwriter from liability for its default.

In the event of any such default which does not result in a termination of this Agreement, either the Representative or the Company shall have the right to postpone the Closing Date or the relevant Option Closing Date, as the case may be, for a period not exceeding seven days in order to effect any required changes in the Registration Statement or Prospectus or in any other documents or arrangements. As used in this Agreement, the term "Underwriter" includes any person substituted for an Underwriter under this Section 10.

11. Notwithstanding anything herein contained, this Agreement (or the obligations of the several Underwriters with respect to any Option Shares which have yet to be purchased) may be terminated, subject to the provisions of Section 12, in the absolute discretion of the Representative, by notice given to the Company, if after the execution and delivery of this Agreement and prior to the Closing Date or the Option Closing Date, as the case may be, (a) trading generally on the New York Stock Exchange, Nasdaq Global Select Market, Nasdaq Global Market, or Nasdaq Capital Market shall have been suspended or materially limited, or minimum or maximum prices for trading have been fixed, or maximum ranges for prices have been required, by any of said exchanges or by such system or by order of the Commission, FINRA or any other governmental or regulatory authority, (b) trading of any securities of or guaranteed by the Company or any Subsidiary shall have been suspended on any exchange or in any over-the-counter market, (c) a general moratorium on commercial banking activities in New York or Maryland shall have been declared by Federal, New York State or Maryland State authorities or a new restriction materially adversely affecting the distribution of the Firm Shares or the Option Shares, as the case may be, shall have become effective, or (d) there has occurred any material adverse change in the financial markets in the United States or the international financial markets, any outbreak of hostilities or escalation thereof or other calamity or crisis or any change or development involving a prospective change in national or international political, financial or economic conditions, in each case the effect of which is such as to make it, in the judgment of the Representative, impracticable to market the Shares to be delivered on the Closing Date or Option Closing Date, as the case may be, or to enforce contracts for the sale of the Shares.

If this Agreement is terminated pursuant to this Section 11, such termination will be without liability of any party to any other party except as provided in Section 12 hereof.

12. The respective indemnities, agreements, representations, warranties and other statements of the Company or its officers and of the several Underwriters set forth in or made pursuant to this Agreement will remain in full force and effect, regardless of any investigation, or statement as to the results thereof, made by or on behalf of any Underwriter or its Affiliates or selling agents, the Company or any of their respective representatives, officers or directors or any controlling person, and will survive delivery of and payment for the Shares. If this Agreement is terminated pursuant to Section 8, 10 or 11 or if for any reason the purchase of any of the Shares by the Underwriters is not consummated, the Company shall remain responsible for the expenses to be paid or reimbursed by it pursuant to Section 7, the respective obligations of the Company and the Underwriters pursuant to Section 9 and the provisions of Sections 12, 13 and 16 shall remain in effect and, if any Shares have been purchased hereunder the representations and warranties in Section 1 and all obligations under Section 5 and Section 6 shall also remain in effect. If this Agreement shall be terminated by the Underwriters, or any of them, under Section 8 or otherwise because of any failure or refusal on the part of the Company to comply with the terms or to fulfill any of the conditions of this Agreement, or if for any reason the Company shall be unable to perform its obligations under this Agreement or any condition of the Underwriters' obligations cannot be fulfilled, the Company agrees to reimburse the Underwriters or such Underwriters as have so terminated this Agreement with respect to themselves, severally, for all out-of-pocket expenses (including the fees and expenses of its counsel) reasonably incurred by the Underwriter in connection with this Agreement or the offering contemplated hereunder.

13. This Agreement shall inure to the benefit of and be binding upon the Company and the Underwriters, the officers and directors of the Company referred to herein, any controlling persons referred to herein and their respective successors and assigns. Nothing expressed or mentioned in this Agreement is intended or shall be construed to give any other person, firm or corporation any legal or equitable right, remedy or claim under or in respect of this Agreement or any provision herein contained. No purchaser of Shares from any Underwriter shall be deemed to be a successor or assign by reason merely of such purchase.

14. All notices and other communications hereunder shall be in writing and shall be deemed to have been duly given upon receipt thereof by the recipient if mailed or transmitted by any standard form of telecommunication. Notices to the Underwriters shall be given to the Representative, c/o Stifel, Nicolaus & Company, Incorporated, 787 Seventh Avenue, 12th Floor, New York, NY 10019, Attention: Equity Capital Markets; and JMP Securities LLC, 600 Montgomery Street, Suite 1100, San Francisco, California 94111, Facsimile: (415) 835-8985, Attention: Equity Securities;. Notices to the Company shall be given to it at CTI BioPharma Corp., 3101 Western Avenue, Suite 800, Seattle, WA 98121, Attention: Chief Executive Officer.

15. This Agreement may be signed in counterparts, each of which shall be an original and all of which together shall constitute one and the same instrument.

16. THIS AGREEMENT SHALL BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NEW YORK, WITHOUT REGARD TO SUCH STATE'S PRINCIPLES OF CONFLICTS OF LAWS.

17. The parties hereby submit to the jurisdiction of and venue in the federal courts located in the City of New York, New York in connection with any dispute related to this Agreement, any transaction contemplated hereby, or any other matter contemplated hereby.

18. 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. 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. For purposes of this Section 18, a “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. “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.

19. The Company acknowledges and agrees that (i) the purchase and sale of the Shares pursuant to this Agreement, including the determination of the public offering price of the Shares and any related discounts and commissions, is an arm’s-length commercial transaction between the Company on the one hand, and the several Underwriters, on the other, (ii) in connection therewith and with the process leading to such transaction each Underwriter is acting solely as a principal and not the agent or fiduciary of the Company or its respective stockholders, creditors, employees or any other party, (iii) no Underwriter has assumed an advisory or fiduciary responsibility in favor of the Company with respect to the offering contemplated hereby or the process leading thereto (irrespective of whether such Underwriter has advised or is currently advising the Company on other matters) or any other obligation to the Company except the obligations expressly set forth in this Agreement, and (iv) the Company has consulted its own legal and financial advisors to the extent it deemed appropriate. The Company agrees that it will not claim that the Underwriters, or any of them, has rendered advisory services of any nature or respect, or owes a fiduciary or similar duty to the Company, in connection with such transaction or the process leading thereto.

20. The Company acknowledges that the Underwriters’ research analysts and research departments are required to be independent from their respective investment banking divisions and are subject to certain regulations and internal policies, and that such Underwriters’ research analysts may hold views and make statements or investment recommendations and/or publish research reports with respect to the Company and/or the offering that differ from the views of their respective investment banking divisions. The Company hereby waives and releases, to the fullest extent permitted by law, any claims that the Company may have against the Underwriters with respect to any conflict of interest that may arise from the fact that the views expressed by their independent research analysts and research departments may be different from or inconsistent with the views or advice communicated to the Company by such Underwriters’ investment banking divisions. The Company acknowledges that each of the Underwriters is a full service securities firm and as such from time to time, subject to applicable securities laws, may effect transactions for its own account or the account of its customers and hold long or short positions in debt or equity securities of the companies that may be the subject of the transactions contemplated by this Agreement.

21. Notwithstanding anything herein to the contrary, the Company is authorized to disclose to any persons the U.S. federal and state income tax treatment and tax structure of the potential transaction and all materials of any kind (including tax opinions and other tax analyses) provided to the Company relating to that treatment and structure, without the Underwriters imposing any limitation of any kind. However, any information relating to the tax treatment and tax structure shall remain confidential (and the foregoing sentence shall not apply) to the extent necessary to enable any person to comply with securities laws. For this purpose, "tax structure" is limited to any facts that may be relevant to that treatment.

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

23. The Company and each of the Underwriters 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.

If the foregoing is in accordance with your understanding of our agreement, please sign and return to the Company a counterpart hereof, whereupon this instrument will become a binding agreement among the Company and the Underwriters.

Very truly yours,

CTI BIOPHARMA CORP.

By: /s/ David Kirske

Name: David Kirske

Title: Chief Financial Officer

Accepted as of the date hereof:

STIFEL, NICOLAUS & COMPANY, INCORPORATED

By: /s/ Sean Cessna

Name: Sean Cessna

Title: Managing Director

JMP SECURITIES LLC

By: /s/ Raymond Han

Name: Raymond Han

Title: Director, Investment Banking

For themselves and as Representative of the
other Underwriters named in Schedule I hereto

SCHEDULE I

<u>Underwriter</u>	<u>Number of Common Shares to be Purchased</u>	<u>Number of Preferred Shares to be Purchased</u>
Stifel, Nicolaus & Company, Incorporated	8,556,480	360
JMP Securities LLC	4,278,240	180
BTIG, LLC	1,426,080	60
Total:	14,260,800	600

Issuer Free Writing Prospectuses:

None.

Written Testing-the-Waters Communication:

None.

The following information is also included in the Pricing Disclosure Package:

Number of Common Shares to be Issued by the Company: 14,260,800

Public Offering Price: \$2.50 per Common Share

Number of Preferred Shares to be Issued by the Company: 600

Public Offering Price: \$25,000 per Preferred Share

Individuals Providing Lock-Ups

Adam Craig
David Kirske
Bruce Seeley
Laurent Fischer
Michael Metzger
David Parkinson
Matthew Perry
Reed Tuckson

LOCK-UP AGREEMENT

March , 2021

STIFEL, NICOLAUS & COMPANY, INCORPORATED
JMP SECURITIES LLC
As Representative of the Several Underwriters

c/o Stifel, Nicolaus & Company, Incorporated
One South Street, 15th Floor
Baltimore, MD 21202

c/o JMP Securities LLC
600 Montgomery Street, Suite 1100
San Francisco, CA 94111

RE: CTI BioPharma Corp. (the “**Company**”)

Ladies & Gentlemen:

The undersigned is an owner of shares of common stock, par value \$0.001 per share, of the Company (“**Shares**”) or of securities convertible into or exchangeable or exercisable for Shares. The Company proposes to conduct a public offering (the “**Offering**”) for which Stifel, Nicolaus & Company, Incorporated and JMP Securities LLC (the “**Representatives**”) will act as the representative of the underwriters. The undersigned recognizes that the Offering will benefit each of the Company and the undersigned. The undersigned acknowledges that the underwriters are relying on the representations and agreements of the undersigned contained in this letter agreement in conducting the Offering and, at a subsequent date, in entering into an underwriting agreement (the “**Underwriting Agreement**”) and other underwriting arrangements with the Company with respect to the Offering.

Annex A sets forth definitions for capitalized terms used in this letter agreement that are not defined in the body of this agreement. Those definitions are a part of this agreement.

In consideration of the foregoing, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the undersigned hereby agrees that, during the Lock-up Period, the undersigned will not (and will use his/her best efforts to cause any Family Member not to), without the prior written consent of the Representatives, which may withhold their consent in their sole discretion:

- Sell or Offer to Sell any Shares or Related Securities currently or hereafter owned either of record or beneficially (as defined in Rule 13d-3 under the Exchange Act) by the undersigned or such Family Member,
- enter into any Swap,

- make any demand for, or exercise any right with respect to, the registration under the Securities Act of the offer and sale of any Shares or Related Securities, or cause to be filed a registration statement, prospectus or prospectus supplement (or an amendment or supplement thereto) with respect to any such registration, or
- publicly announce any intention to do any of the foregoing.

The foregoing will not apply to the registration of the offer and sale of the Shares, and the sale of the Shares to the underwriters, in each case as contemplated by the Underwriting Agreement. In addition, the foregoing restrictions shall not apply to (A) establishment of a trading plan pursuant to Rule 10b5-1 under the Exchange Act for the transfer of Shares, provided that such plan shall not provide for any transfers during the Lock-up Period and the entry into such plan shall not be publicly disclosed, including in any filing under the Exchange Act, during the Lock-up Period, (B) the transfer of Shares or Related Securities to the Company upon the termination or forfeiture of an equity or equity-based award (or the shares subject thereto), or (C) the transfer of Shares or Related Securities (i) by gift, (ii) by will or intestate succession to a Family Member, (iii) to a trust whose beneficiaries consist exclusively of one or more of the undersigned and/or a Family Member, provided, further, that in any such case under clause (C) above, it shall be a condition to such transfer that:

- each transferee executes and delivers to the Representatives an agreement in form and substance satisfactory to the Representatives stating that such transferee is receiving and holding such Shares and/or Related Securities subject to the provisions of this letter agreement and agrees not to Sell or Offer to Sell such Shares and/or Related Securities, engage in any Swap or engage in any other activities restricted under this letter agreement except in accordance with this letter agreement (as if such transferee had been an original signatory hereto); and
- prior to the expiration of the Lock-up Period, no public disclosure or filing under the Exchange Act by any party to the transfer (donor, donee, transferor or transferee) shall be required, or made voluntarily, reporting a reduction in beneficial ownership of Shares in connection with such transfer.

The undersigned also agrees and consents to the entry of stop transfer instructions with the Company's transfer agent and registrar against the transfer of Shares or Related Securities held by the undersigned and the undersigned's Family Members, if any, except in compliance with the foregoing restrictions.

With respect to the Offering only, the undersigned waives any registration rights relating to registration under the Securities Act of the offer and sale of any Shares and/or any Related Securities owned either of record or beneficially by the undersigned, including any rights to receive notice of the Offering.

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

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

The undersigned hereby represents and warrants that the undersigned has full power, capacity and authority to enter into this letter agreement. This letter agreement is irrevocable and will be binding on the undersigned and the successors, heirs, personal representatives and assigns of the undersigned.

This letter agreement shall be governed by, and construed in accordance with, the laws of the State of New York.

If for any reason (i) the Underwriting Agreement (excluding any provisions that expressly survive termination) shall be terminated prior to the First Closing Date (as defined in the Underwriting Agreement), (ii) the Underwriting Agreement is not executed and delivered by the Underwriters and the Company on or before April 30, 2021, or (iii) at any time prior to the execution and delivery of the Underwriting Agreement the Underwriters and the Company mutually determine to abandon the Offering, then this letter agreement shall terminate and be of no further force or effect.

Signature

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

**Certain Defined Terms
Used in Lock-up Agreement**

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

- “**Call Equivalent Position**” shall **have** the meaning set forth in Rule 16a-1(b) under the Exchange Act.
- “**Exchange Act**” shall mean the Securities Exchange Act of 1934, as amended.
- “**Family Member**” shall mean the spouse of the undersigned, an immediate family member of the undersigned or an immediate family member of the undersigned’s spouse, in each case living in the undersigned’s household or whose principal residence is the undersigned’s household (regardless of whether such **spouse** or family member may at the time be living elsewhere due to educational activities, health care treatment, military service, temporary internship or employment or otherwise).
- “**Immediate family member**” as used above shall have the meaning set forth in Rule 16a-1(e) under the Exchange Act.
- “**Lock-up Period**” shall mean the period beginning on the date hereof and continuing through the close of trading on the date that is 90 days after the date of the Prospectus (as defined in the Underwriting Agreement).
- “**Put Equivalent Position**” shall have the meaning set forth in Rule 16a-1(h) under the Exchange Act.
- “**Related Securities**” shall mean any options or warrants or other rights to acquire Shares or any securities exchangeable or exercisable for or convertible into Shares, or to acquire other securities or rights ultimately exchangeable or exercisable for or convertible into Shares.
- “**Securities Act**” shall mean the Securities Act of 1933, as amended.
- “**Sell or Offer to Sell**” shall mean to:
 - sell, offer to sell, contract to sell or lend,
 - effect any short sale or establish or increase a Put Equivalent Position or liquidate or decrease any Call Equivalent Position
 - pledge, hypothecate or grant any security interest in, or
 - in any other way transfer or dispose of, in each case whether effected directly or indirectly.
- “**Swap**” shall mean any swap, hedge or similar arrangement or agreement that transfers, in whole or in part, the economic risk of ownership of Shares or Related Securities, regardless of whether any such transaction is to be settled in securities, in cash or otherwise.

Capitalized terms not defined in this Annex A shall have the meanings given to them in the body of this lock-up agreement.

CTI BIOPHARMA CORP.
**CERTIFICATE OF DESIGNATION OF PREFERENCES,
RIGHTS AND LIMITATIONS
OF
SERIES X¹ CONVERTIBLE PREFERRED STOCK**

PURSUANT TO SECTION 151 OF THE
DELAWARE GENERAL CORPORATION LAW

CTI BIOPHARMA CORP., a Delaware corporation (the “**Corporation**”), in accordance with the provisions of Section 103 of the Delaware General Corporation Law (the “**DGCL**”) does hereby certify that, in accordance with Sections 141(c) and 151 of the DGCL, the following resolution was duly adopted by the Board of Directors, on March 16, 2021:

RESOLVED, pursuant to authority expressly set forth in the Certificate of Incorporation of the Corporation, as amended (the “**Certificate of Incorporation**”), the issuance of a series of Preferred Stock designated as the Series X¹ Convertible Preferred Stock, par value \$0.001 per share, of the Corporation is hereby authorized and the designation, number of shares, powers, preferences, rights, qualifications, limitations and restrictions thereof (in addition to any provisions set forth in the Certificate of Incorporation that are applicable to the Preferred Stock of all classes and series) are hereby fixed, and the Certificate of Designation of Preferences, Rights and Limitations of Series X¹ Convertible Preferred Stock is hereby approved as follows:

SERIES X¹ CONVERTIBLE PREFERRED STOCK

Section 1. Definitions. For the purposes hereof, the following terms shall have the following meanings:

“**Affiliate**” means any Person or entity that, directly or indirectly through one or more intermediaries, controls or is controlled by or is under common control with a person or entity, as such terms are used in and construed under Rule 144 under the Securities Act. With respect to a Holder, any investment fund or managed account that is managed on a discretionary basis by the same investment manager as such Holder will be deemed to be an Affiliate of such Holder.

“**Business Day**” means any day except Saturday, Sunday, any day which shall be a federal legal holiday in the United States or any day on which banking institutions in the State of New York are authorized or required by law or other governmental action to close.

“**Closing Sale Price**” means, for any security as of any date, the last closing trade price for such security prior to 4:00 p.m., New York City time, on the principal securities exchange or trading market where such security is listed or traded, as reported by Bloomberg, L.P. (or an equivalent, reliable reporting service mutually acceptable to and hereafter designated by Holders of a majority of the then-outstanding Series X¹ Preferred Stock and the Corporation), or if the foregoing do not apply, the last trade price of such security in the over-the-counter market on the electronic bulletin board for such security as reported by Bloomberg, L.P., or, if no last trade price is reported for such security by Bloomberg, L.P., the average of the bid prices of any market makers for such security as reported on the OTC Pink Market by OTC Markets Group, Inc. If the Closing Sale Price cannot be calculated for a security on a particular date on any of the foregoing bases, the Closing Sale Price of such security on such date shall be the fair market value as determined in good faith by the Board of Directors of the Corporation.

“**Commission**” means the Securities and Exchange Commission.

“**Common Stock**” means the Corporation’s common stock, par value of \$0.001 per share, and stock of any other class of securities into which such securities may hereafter be reclassified into.

“**Conversion Shares**” means, collectively, the shares of Common Stock issuable upon conversion of the shares of Series X¹ Preferred Stock in accordance with the terms hereof.

“**Daily Failure Amount**” means the product of (x) .005 multiplied by (y) the Closing Sale Price of the Common Stock on the applicable Share Delivery Date.

“**Exchange Act**” means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

“**Holder**” means any holder of Series X¹ Preferred Stock.

“**Person**” means any individual or corporation, partnership, trust, incorporated or unincorporated association, joint venture, limited liability company, joint stock company, government (or an agency or subdivision thereof) or other entity of any kind.

“**Securities Act**” means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

“**Trading Day**” means a day on which the Common Stock is traded for any period on a principal securities exchange or if the Common Stock is not traded on a principal securities exchange, on a day that the Common Stock is traded on another securities market on which the Common Stock is then being traded.

Section 2. Designation, Amount and Par Value; Assignment.

(a) The series of preferred stock designated by this Certificate of Designation shall be designated as the Corporation’s Series X¹ Convertible Preferred Stock (the “**Series X¹ Preferred Stock**”) and the number of shares so designated shall be 600. Series X¹ Preferred Stock shall have a par value of \$0.001 per share.

(b) The Corporation shall register shares of the Series X¹ Preferred Stock, upon records to be maintained by the Corporation for that purpose (the “**Series X¹ Preferred Stock Register**”), in the name of the Holders thereof from time to time. The Corporation may deem and treat the registered Holder of shares of Series X¹ Preferred Stock as the absolute owner thereof for the purpose of any conversion thereof and for all other purposes. Shares of Series X¹ Preferred Stock may be issued solely in book entry form or, if requested by any Holder, such Holder’s shares may be issued in certificated form. The Corporation shall register the transfer of any shares of Series X¹ Preferred Stock in the Series X¹ Preferred Stock Register, upon surrender of the certificates (if applicable) evidencing such shares to be transferred, duly endorsed by the Holder thereof, to the Corporation at its address specified herein. Upon any such registration or transfer, a new certificate evidencing the shares of Series X¹ Preferred Stock so transferred shall be issued to the transferee and a new certificate evidencing the remaining portion of the shares not so transferred, if any, shall be issued to the transferring Holder, in each case, within three (3) Business Days. The provisions of this Certificate of Designation are intended to be for the benefit of all Holders from time to time and shall be enforceable by any such Holder.

Section 3. Dividends. Holders shall be entitled to receive, and the Corporation shall pay, dividends on shares of the Series X¹ Preferred Stock (on an as-if-converted-to-Common-Stock basis, without regard to the Beneficial Ownership Limitation) equal to and in the same form, and in the same manner, as dividends (other than dividends on shares of the Common Stock payable in the form of Common Stock) actually paid on shares of the Common Stock when, as and if such dividends (other than dividends payable in the form of Common Stock) are paid on shares of the Common Stock. Other than as set forth in the previous sentence, no other dividends shall be paid on shares of Series X¹ Preferred Stock, and the Corporation shall pay no dividends (other than dividends payable in the form of Common Stock) on shares of the Common Stock unless it simultaneously complies with the previous sentence.

Section 4. Voting Rights; Amendments.

(a) Except as otherwise provided herein or as otherwise required by the DGCL, the Series X1 Preferred Stock shall have no voting rights. However, as long as any shares of Series X1 Preferred Stock are outstanding, the Corporation shall not, without the affirmative vote of the Holders of a majority of the then outstanding shares of the Series X1 Preferred Stock: (i) alter or change adversely the powers, preferences or rights given to the Series X1 Preferred Stock or alter or amend this Certificate of Designation, amend or repeal any provision of, or add any provision to, the Certificate of Incorporation or bylaws of the Corporation, or file any articles of amendment, certificate of designations, preferences, limitations and relative rights of any series of preferred stock, if such action would adversely alter or change the preferences, rights, privileges or powers of, or restrictions provided for the benefit of the Series X1 Preferred Stock, regardless of whether any of the foregoing actions shall be by means of amendment to the Certificate of Incorporation or by merger, consolidation or otherwise, (ii) issue further shares of Series X1 Preferred Stock or increase or decrease (other than by conversion) the number of authorized shares of Series X1 Preferred Stock, or (iii) enter into any agreement with respect to any of the foregoing.

(b) Any vote required or permitted under Section 4(a) may be taken at a meeting of the Holders of the Series X1 Preferred Stock or through the execution of an action by written consent in lieu of such meeting, provided that the consent is executed by Holders representing a majority of the outstanding shares of Series X1 Preferred Stock.

Section 5. Rank; Liquidation.

(a) The Series X1 Preferred Stock shall rank: (i) senior to the Series ZZ Junior Participating Cumulative Preferred Stock of the Corporation and to any class or series of capital stock of the Corporation hereafter created specifically ranking by its terms junior to any Series X1 Preferred Stock (“**Junior Securities**”); (ii) on parity with the Common Stock, Series O Preferred Stock, Series X Preferred Stock and any other class or series of capital stock of the Corporation hereafter created specifically ranking by its terms on parity with the Series X1 Preferred Stock (the “**Parity Securities**”); and (iii) junior to any class or series of capital stock of the Corporation hereafter created specifically ranking by its terms senior to any Series X1 Preferred Stock (“**Senior Securities**”), in each case, as to distributions of assets upon liquidation, dissolution or winding up of the Corporation, whether voluntarily or involuntarily (all such distributions being referred to collectively as “**Distributions**”).

(b) Subject to the prior and superior rights of the holders of any Senior Securities of the Corporation, upon liquidation, dissolution or winding up of the Corporation, whether voluntary or involuntary (a “**Liquidation**”), each Holder shall be entitled to receive, in preference to any Distributions of any of the assets or surplus funds of the Corporation to the holders of the Junior Securities, and *pari passu* with any Distribution to the holders of the Parity Securities, an equivalent amount of Distributions as would be paid on the Common Stock underlying the Series X1 Preferred Stock, determined on an as-converted basis (without regard to the Beneficial Ownership Limitation), plus an additional amount equal to any dividends declared but unpaid on such shares, before any payments shall be made or any assets distributed to holders of any class of Junior Securities. If, upon any such Liquidation, the assets of the Corporation shall be insufficient to pay the Holders of shares of the Series X1 Preferred Stock the amount required under the preceding sentence, then all remaining assets of the Corporation shall be distributed ratably to Holders and holders of Parity Securities in accordance with the respective amounts that would be payable on all such securities if all amounts payable thereon were paid in full. A Fundamental Transaction shall not be deemed a Liquidation unless the Corporation expressly declares that such Fundamental Transaction shall be treated as if it were a Liquidation.

Section 6. Conversion.

(a) Conversions at Option of Holder. Subject to Section 6(d)(v), each share of Series X1 Preferred Stock shall be convertible, at any time and from time to time from and after the date of issuance, at the option of the Holder thereof, into a number of shares of Common Stock equal to the Conversion Ratio. Holders shall effect conversions by providing the Corporation with the form of conversion notice attached hereto as **Annex A** (a “**Notice of Conversion**”), duly completed and executed. Other than a conversion following a Fundamental Transaction or following a notice provided for under Section 7(d)(ii) hereof, the Notice of Conversion must specify at least a number of shares of Series X1 Preferred Stock to be converted equal to the lesser of (x) 100 shares (such number subject to appropriate adjustment following the occurrence of an event specified in Section 7(a) hereof) and (y) the number of shares of Series X1 Preferred Stock then held by the Holder. Provided the Corporation’s transfer agent is participating in the Depository Trust Company (“**DTC**”) Fast Automated Securities Transfer program, the Notice of Conversion may specify, at the Holder’s election, whether the applicable Conversion Shares shall be credited to the account of the Holder’s prime broker with DTC through its Deposit Withdrawal Agent Commission system (a “**DWAC Delivery**”). The “**Conversion Date**”, or the date on which a conversion shall be deemed effective, shall be defined as the Trading Day that the Notice of Conversion, completed and executed, is sent via email to, and received during regular business hours by, the Corporation; provided, that the original certificate(s) (if any) representing such shares of Series X1 Preferred Stock being converted, duly endorsed, and the accompanying Notice of Conversion, are received by the Corporation within two (2) Trading Days thereafter. In all other cases, the Conversion Date shall be defined as the Trading Day on which the original certificate(s) (if any) representing such shares of Series X1 Preferred Stock being converted, duly endorsed, and the accompanying Notice of Conversion, are received by the Corporation. The calculations set forth in the Notice of Conversion shall control in the absence of manifest or mathematical error.

(b) **Conversion Ratio.** The “**Conversion Ratio**” for each share of Series X1 Preferred Stock shall be 10,000 shares of Common Stock issuable upon the conversion of each share of Series X1 Preferred Stock (corresponding to a ratio of 10,000:1).

(c) **Beneficial Ownership Limitation.** Notwithstanding anything herein to the contrary, the Corporation shall not effect any conversion of the Series X1 Preferred Stock, and a Holder shall not have the right to convert any portion of the Series X1 Preferred Stock, to the extent that, after giving effect to an attempted conversion set forth on an applicable Notice of Conversion, such Holder (together with such Holder’s Affiliates, and any other Person whose beneficial ownership of Common Stock would be aggregated with the Holder’s for purposes of Section 13(d) or Section 16 of the Exchange Act and the applicable regulations of the Commission, including any “group” of which the Holder is a member (the foregoing, “**Attribution Parties**”)) would beneficially own a number of shares of Common Stock in excess of the Beneficial Ownership Limitation (as defined below). For purposes of the foregoing sentence, the number of shares of Common Stock beneficially owned by such Holder and its Attribution Parties shall include the number of shares of Common Stock issuable upon conversion of the Series X1 Preferred Stock subject to the Notice of Conversion with respect to which such determination is being made, but shall exclude the number of shares of Common Stock which are issuable upon (A) conversion of the remaining, unconverted Series X1 Preferred Stock beneficially owned by such Holder or any of its Attribution Parties, and (B) exercise or conversion of the unexercised or unconverted portion of any other securities of the Corporation (including any warrants) beneficially owned by such Holder or any of its Attribution Parties that are subject to a limitation on conversion or exercise similar to the limitation contained herein. For purposes of this Section 6(c), beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act and the applicable regulations of the Commission. In addition, for purposes hereof, “group” has the meaning set forth in Section 13(d) of the Exchange Act and the applicable regulations of the Commission. For purposes of this Section 6(c), in determining the number of outstanding shares of Common Stock, a Holder may rely on the number of outstanding shares of Common Stock as stated in the most recent of the following: (A) the Corporation’s most recent periodic or annual filing with the Commission, as the case may be, (B) a more recent public announcement by the Corporation that is filed with the Commission, or (C) a more recent notice by the Corporation or the Corporation’s transfer agent to the Holder setting forth the number of shares of Common Stock then outstanding. Upon the written request of a Holder (which may be by email), the Corporation shall, within three (3) Trading Days thereof, confirm in writing to such Holder (which may be via email) the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to any actual conversion or exercise of securities of the Corporation, including shares of Series X1 Preferred Stock, by such Holder or its Attribution Parties since the date as of which such number of outstanding shares of Common Stock was last publicly reported or confirmed to the Holder. The “**Beneficial Ownership Limitation**” shall initially be 9.99% of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock pursuant to such Notice of Conversion (to the extent permitted pursuant to this Section 6(c)). The Corporation shall be entitled to rely on representations made to it by the Holder in any Notice of Conversion regarding its Beneficial Ownership Limitation. Notwithstanding the foregoing, by written notice to the Corporation, (i) which will not be effective until the sixty-first (61st) day after such written notice is delivered to the Corporation, the Holder may reset the Beneficial Ownership Limitation percentage to a higher percentage, not to exceed the limits under Nasdaq Marketplace Rule 5635(d), to the extent then applicable and (ii) which will be effective immediately after such notice is delivered to the Corporation, the Holder may reset the Beneficial Ownership Limitation percentage to a lower percentage. Upon such a change by a Holder of the Beneficial Ownership Limitation, the Beneficial Ownership Limitation may not be further amended by such Holder without first providing the minimum notice required by this Section 6(c). Notwithstanding the foregoing, at any time following notice of a Fundamental Transaction, the Holder may waive and/or change the Beneficial Ownership Limitation effective immediately upon written notice to the Corporation and may reinstitute a Beneficial Ownership Limitation at any time thereafter effective immediately upon written notice to the Corporation.

(d) Mechanics of Conversion

i. Delivery of Certificate or Electronic Issuance Upon Conversion. Not later than two (2) Trading Days after the applicable Conversion Date, or if the Holder requests the issuance of physical certificate(s), two (2) Trading Days after receipt by the Corporation of the original certificate(s) representing such shares of Series X¹ Preferred Stock being converted, duly endorsed, and the accompanying Notice of Conversion (the “**Share Delivery Date**”), the Corporation shall either: (a) deliver, or cause to be delivered, to the converting Holder a physical certificate or certificates representing the number of Conversion Shares being acquired upon the conversion of shares of Series X¹ Preferred Stock, or (b) in the case of a DWAC Delivery (if so requested by the Holder), electronically transfer such Conversion Shares by crediting the account of the Holder’s prime broker with DTC through its DWAC system. If in the case of any Notice of Conversion such certificate or certificates for the Conversion Shares are not delivered to or as directed by or, in the case of a DWAC Delivery, such shares are not electronically delivered to or as directed by, the applicable Holder by the Share Delivery Date, the applicable Holder shall be entitled to elect to rescind such Notice of Conversion by written notice to the Corporation at any time on or before its receipt of such certificate or certificates for Conversion Shares or electronic receipt of such shares, as applicable, in which event the Corporation shall promptly return to such Holder any original Series X¹ Preferred Stock certificate delivered to the Corporation and such Holder shall promptly return to the Corporation any Common Stock certificates or otherwise direct the return of any shares of Common Stock delivered to the Holder through the DWAC system, representing the shares of Series X¹ Preferred Stock unsuccessfully tendered for conversion to the Corporation.

ii. Obligation Absolute. Subject to Section 6(c) and Section 6(d)(v) hereof and subject to Holder’s right to rescind a Notice of Conversion pursuant to Section 6(d)(i) above, the Corporation’s obligation to issue and deliver the Conversion Shares upon conversion of Series X¹ Preferred Stock in accordance with the terms hereof are absolute and unconditional, irrespective of any action or inaction by a Holder to enforce the same, any waiver or consent with respect to any provision hereof, the recovery of any judgment against any Person or any action to enforce the same, or any setoff, counterclaim, recoupment, limitation or termination, or any breach or alleged breach by such Holder or any other Person of any obligation to the Corporation or any violation or alleged violation of law by such Holder or any other Person, and irrespective of any other circumstance which might otherwise limit such obligation of the Corporation to such Holder in connection with the issuance of such Conversion Shares. Subject to Section 6(c) and Section 6(d)(v) hereof and subject to Holder’s right to rescind a Notice of Conversion pursuant to Section 6(d)(i) above, in the event a Holder shall elect to convert any or all of its Series X¹ Preferred Stock, the Corporation may not refuse conversion based on any claim that such Holder or anyone associated or affiliated with such Holder has been engaged in any violation of law, agreement or for any other reason, unless an injunction from a court, on notice to Holder, restraining and/or enjoining conversion of all or part of the Series X¹ Preferred Stock of such Holder shall have been sought and obtained by the Corporation, and the Corporation posts a surety bond for the benefit of such Holder in the amount of 150% of the value of the Conversion Shares into which would be converted the Series X¹ Preferred Stock which is subject to such injunction, which bond shall remain in effect until the completion of arbitration/litigation of the underlying dispute and the proceeds of which shall be payable to such Holder to the extent it obtains judgment. In the absence of such injunction, the Corporation shall, subject to Section 6(c) and Section 6(d)(v) hereof and subject to Holder’s right to rescind a Notice of Conversion pursuant to Section 6(d)(i) above, issue Conversion Shares upon a properly noticed conversion. If the Corporation fails to deliver to a Holder such certificate or certificates, or electronically deliver (or cause its transfer agent to electronically deliver) such shares in the case of a DWAC Delivery, pursuant to Section 6(d)(i) on or prior to the fifth (5th) Trading Day after the Share Delivery Date applicable to such conversion (other than a failure caused by incorrect or incomplete information provided by Holder to the Corporation), then, unless the Holder has rescinded the applicable Notice of Conversion pursuant to Section 6(d)(i) above, the Corporation shall pay (as liquidated damages and not as a penalty) to such Holder an amount payable, at the Corporation’s option, either (a) in cash or (b) to the extent that it would not cause the Holder or its Attribution Parties to exceed the Beneficial Ownership Limitation, in shares of Common Stock that are valued for these purposes at the Closing Sale Price on the date of such calculation, in each case equal to the product of (x) the number of Conversion Shares required to have been issued by the Corporation on such Share Delivery Date, (y) an amount equal to the Daily Failure Amount and (z) the number of Trading Days actually lapsed after such fifth (5th) Trading Day after the Share Delivery Date during which such certificates have not been delivered, or, in the case of a DWAC Delivery, such shares have not been electronically delivered; *provided, however*, the Holder shall only receive up to such amount of shares of Common Stock such that Holder and its Attribution Parties and any other persons or entities whose beneficial ownership of Common Stock would be aggregated with the Holder’s for purposes of Section 13(d) of the Exchange Act (including shares held by any “group” of which the Holder is a member, but excluding shares beneficially owned by virtue of the ownership of securities or rights to acquire securities that have limitations on the right to convert, exercise or purchase similar to the limitation set forth herein) shall not collectively beneficially own greater than the Beneficial Ownership Limitation. Nothing herein shall limit a Holder’s right to pursue actual damages for the Corporation’s failure to deliver Conversion Shares within the period specified herein and such Holder shall have the right to pursue all remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief; *provided*, that Holder shall not receive duplicate damages for the Corporation’s failure to deliver Conversion Shares within the period specified herein. The exercise of any such rights shall not prohibit a Holder from seeking to enforce damages pursuant to any other Section hereof or under applicable law.

iii. Compensation for Buy-In on Failure to Timely Deliver Certificates Upon Conversion. If the Corporation fails to deliver to a Holder the applicable certificate or certificates or to effect a DWAC Delivery, as applicable, by the Share Delivery Date pursuant to Section 6(d)(i) (other than a failure caused by incorrect or incomplete information provided by Holder to the Corporation), and if after such Share Delivery Date such Holder is required by its brokerage firm to purchase (in an open market transaction or otherwise), or the Holder's brokerage firm otherwise purchases, shares of Common Stock to deliver in satisfaction of a sale by such Holder of the Conversion Shares which such Holder was entitled to receive upon the conversion relating to such Share Delivery Date (a "**Buy-In**"), then the Corporation shall (A) pay in cash to such Holder (in addition to any other remedies available to or elected by such Holder) the amount by which (x) such Holder's total purchase price (including any brokerage commissions) for the shares of Common Stock so purchased exceeds (y) the product of (1) the aggregate number of shares of Common Stock that such Holder was entitled to receive from the conversion at issue multiplied by (2) the actual sale price at which the sell order giving rise to such purchase obligation was executed (including any brokerage commissions) and (B) at the option of such Holder, either reissue (if surrendered) the shares of Series X1 Preferred Stock equal to the number of shares of Series X1 Preferred Stock submitted for conversion or deliver to such Holder the number of shares of Common Stock that would have been issued if the Corporation had timely complied with its delivery requirements under Section 6(d)(i). For example, if a Holder purchases shares of Common Stock having a total purchase price of \$11,000 to cover a Buy-In with respect to an attempted conversion of shares of Series X1 Preferred Stock with respect to which the actual sale price (including any brokerage commissions) giving rise to such purchase obligation was a total of \$10,000 under clause (A) of the immediately preceding sentence, the Corporation shall be required to pay such Holder \$1,000. The Holder shall provide the Corporation written notice, within three (3) Trading Days after the occurrence of a Buy-In, indicating the amounts payable to such Holder in respect of such Buy-In together with applicable confirmations and other evidence reasonably requested by the Corporation. Nothing herein shall limit a Holder's right to pursue any other remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Corporation's failure to timely deliver certificates representing shares of Common Stock upon conversion of the shares of Series X1 Preferred Stock as required pursuant to the terms hereof; provided, however, that the Holder shall not be entitled to both (i) require the reissuance of the shares of Series X1 Preferred Stock submitted for conversion for which such conversion was not timely honored and (ii) receive the number of shares of Common Stock that would have been issued if the Corporation had timely complied with its delivery requirements under Section 6(d)(i).

iv. Reservation of Shares Issuable Upon Conversion. The Corporation covenants that at all times after receipt of stockholder approval after the date hereof to increase the Corporation's shares of authorized Common Stock, it will reserve and keep available out of its authorized and unissued shares of Common Stock for the sole purpose of issuance upon conversion of the Series X1 Preferred Stock, free from preemptive rights or any other actual contingent purchase rights of Persons other than the Holders of the Series X1 Preferred Stock, not less than such aggregate number of shares of the Common Stock as shall be issuable (taking into account the adjustments of Section 7) upon the conversion of all outstanding shares of Series X1 Preferred Stock. The Corporation covenants that all shares of Common Stock that shall be so issuable shall, upon issue, be duly authorized, validly issued, fully paid and non-assessable.

v. Limitation on Conversion. In the event that any Holder elects to convert shares of Series X¹ Preferred Stock into Conversion Shares pursuant to Section 6(a), the number of shares of Common Stock into which the shares of Series X¹ Preferred Stock can then be converted upon such exercise pursuant to this Certificate of Designation shall not exceed the maximum number of unissued and otherwise unreserved shares of Common Stock which the Corporation may issue under the Certificate of Incorporation at any given time.

vi. Fractional Shares. No fractional shares or scrip representing fractional shares of Common Stock shall be issued upon the conversion of the Series X¹ Preferred Stock. As to any fraction of a share which a Holder would otherwise be entitled to receive upon such conversion, the Corporation shall pay a cash adjustment in respect of such fractional share of Common Stock in an amount equal to such fraction multiplied by the Closing Sale Price.

vii. Transfer Taxes. The issuance of certificates for shares of the Common Stock upon conversion of the Series X¹ Preferred Stock shall be made without charge to any Holder for any documentary stamp or similar taxes that may be payable in respect of the issue or delivery of such certificates, provided that the Corporation shall not be required to pay any tax that may be payable in respect of any transfer involved in the issuance and delivery of any such certificate upon conversion in a name other than that of the registered Holder(s) of such shares of Series X¹ Preferred Stock and the Corporation shall not be required to issue or deliver such certificates unless or until the Person or Persons requesting the issuance thereof shall have paid to the Corporation the amount of such tax or shall have established to the satisfaction of the Corporation that such tax has been paid.

(e) Status as Stockholder. Upon each Conversion Date, (i) the shares of Series X¹ Preferred Stock being converted shall be deemed converted into shares of Common Stock and (ii) the Holder's rights as a holder of such converted shares of Series X¹ Preferred Stock shall cease and terminate, excepting only the right to receive certificates for such shares of Common Stock and to any remedies provided herein or otherwise available at law or in equity to such Holder because of a failure by the Corporation to comply with the terms of this Certificate of Designation. In all cases, the Holder shall retain all of its rights and remedies for the Corporation's failure to convert Series X¹ Preferred Stock.

Section 7. Certain Adjustments.

(a) Stock Dividends and Stock Splits. If the Corporation, at any time while this Series X¹ Preferred Stock is outstanding: (A) pays a stock dividend or otherwise makes a distribution or distributions payable in shares of Common Stock (which, for avoidance of doubt, shall not include any shares of Common Stock issued by the Corporation upon conversion of this Series X¹ Preferred Stock) with respect to the then outstanding shares of Common Stock; (B) subdivides outstanding shares of Common Stock into a larger number of shares; or (C) combines (including by way of a reverse stock split) outstanding shares of Common Stock into a smaller number of shares, then the Conversion Ratio shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock (excluding any treasury shares of the Corporation) outstanding immediately after such event and of which the denominator shall be the number of shares of Common Stock outstanding immediately before such event (excluding any treasury shares of the Corporation). Any adjustment made pursuant to this Section 7(a) shall become effective immediately after the record date for the determination of stockholders entitled to receive such dividend or distribution and shall become effective immediately after the effective date in the case of a subdivision or combination.

(b) **Fundamental Transaction.** If, at any time while this Series X¹ Preferred Stock is outstanding, (A) the Corporation effects any merger or consolidation of the Corporation with or into another Person or any stock sale to, or other business combination (including, without limitation, a reorganization, recapitalization, spin-off, share exchange or scheme of arrangement) with or into another Person (other than such a transaction in which the Corporation is the surviving or continuing entity and its Common Stock is not exchanged for or converted into other securities, cash or property), (B) the Corporation effects any sale of all or substantially all of its assets in one transaction or a series of related transactions, (C) any tender offer or exchange offer (whether by the Corporation or another Person) is completed pursuant to which more than 50% of the Common Stock not held by the Corporation or such Person is exchanged for or converted into other securities, cash or property, or (D) the Corporation effects any reclassification of the Common Stock or any compulsory share exchange pursuant (other than as a result of a dividend, subdivision or combination covered by Section 7(a) above) to which the Common Stock is effectively converted into or exchanged for other securities, cash or property (in any such case, a “**Fundamental Transaction**”), then, upon any subsequent conversion of this Series X¹ Preferred Stock the Holders shall have the right to receive, in lieu of the right to receive Conversion Shares, for each Conversion Share that would have been issuable upon such conversion immediately prior to the occurrence of such Fundamental Transaction, the same kind and amount of securities, cash or property as it would have been entitled to receive upon the occurrence of such Fundamental Transaction if it had been, immediately prior to such Fundamental Transaction, the holder of one share of Common Stock (the “**Alternate Consideration**”). For purposes of any such subsequent conversion, the determination of the Conversion Ratio shall be appropriately adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one share of Common Stock in such Fundamental Transaction, and the Corporation shall adjust the Conversion Ratio in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of Common Stock are given any choice as to the securities, cash or property to be received in a Fundamental Transaction, then the Holders shall be given the same choice as to the Alternate Consideration it receives upon any conversion of this Series X¹ Preferred Stock following such Fundamental Transaction. To the extent necessary to effectuate the foregoing provisions, any successor to the Corporation or surviving entity in such Fundamental Transaction shall file a new Certificate of Designation with the same terms and conditions and issue to the Holders new preferred stock consistent with the foregoing provisions and evidencing the Holders’ right to convert such preferred stock into Alternate Consideration. The terms of any agreement to which the Corporation is a party and pursuant to which a Fundamental Transaction is effected shall include terms requiring any such successor or surviving entity to comply with the provisions of this Section 7(b) and insuring that this Series X¹ Preferred Stock (or any such replacement security) will be similarly adjusted upon any subsequent transaction analogous to a Fundamental Transaction. The Corporation shall cause to be delivered to each Holder, at its last address as it shall appear upon the stock books of the Corporation, written notice of any Fundamental Transaction at least 20 calendar days prior to the date on which such Fundamental Transaction is expected to become effective or close.

(c) **Calculations.** All calculations under this Section 7 shall be made to the nearest cent or the nearest 1/100th of a share, as the case may be. For purposes of this Section 7, the number of shares of Common Stock deemed to be issued and outstanding as of a given date shall be the sum of the number of shares of Common Stock (excluding any treasury shares of the Corporation) issued and outstanding.

(d) **Notice to the Holders.**

i. **Adjustment to Conversion Ratio.** Whenever the Conversion Ratio is adjusted pursuant to any provision of this Section 7, the Corporation shall promptly deliver to each Holder a notice setting forth the Conversion Ratio after such adjustment and setting forth a brief statement of the facts requiring such adjustment.

ii. **Other Notices.** If: (A) the Corporation shall declare a dividend (or any other distribution in whatever form) on the Common Stock, (B) the Corporation shall declare a special nonrecurring cash dividend on or a redemption of the Common Stock, (C) the Corporation shall authorize the granting to all holders of the Common Stock of rights or warrants to subscribe for or purchase any shares of capital stock of any class or of any rights, (D) the approval of any stockholders of the Corporation shall be required in connection with any reclassification of the Common Stock, any consolidation or merger to which the Corporation is a party, any sale or transfer of all or substantially all of the assets of the Corporation, or any compulsory share exchange whereby the Common Stock is converted into other securities, cash or property, or (E) the Corporation shall authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of the Corporation, then, in each case, the Corporation shall cause to be filed at each office or agency maintained for the purpose of conversion of this Series X¹ Preferred Stock, and shall cause to be delivered to each Holder at its last address as it shall appear upon the stock books of the Corporation, at least 20 calendar days prior to the applicable record or effective date hereinafter specified, a notice stating (x) the date on which a record is to be taken for the purpose of such dividend, distribution, redemption, rights or warrants, or if a record is not to be taken, the date as of which the holders of the Common Stock of record to be entitled to such dividend, distributions, redemption, rights or warrants are to be determined or (y) the date on which such reclassification, consolidation, merger, sale, transfer or share exchange is expected to become effective or close, and the date as of which it is expected that holders of the Common Stock of record shall be entitled to exchange their shares of the Common Stock for securities, cash or other property deliverable upon such reclassification, consolidation, merger, sale, transfer or share exchange, provided that the failure to deliver such notice or any defect therein or in the delivery thereof shall not affect the validity of the corporate action required to be specified in such notice.

Section 8. Miscellaneous.

(a) Notices. Any and all notices or other communications or deliveries to be provided by the Holders hereunder including, without limitation, any Notice of Conversion, shall be in writing and delivered personally, via email or sent by a nationally recognized overnight courier service, addressed to the Corporation, at 3101 Western Avenue, Suite 800, Seattle, Washington 98121, Attention: David Kirske, email: dkirske@ctibiopharma.com, with a copy to (which shall not constitute notice) to: Gibson, Dunn & Crutcher LLP, 555 Mission Street, Suite 3000, San Francisco, California 94105, Attention: Ryan A. Murr and Branden C. Berns, email: rmurr@gibsondunn.com and bberns@gibsondunn.com, or such other email address or mailing address as the Corporation may specify for such purposes by notice to the Holders delivered in accordance with this Section. Any and all notices or other communications or deliveries to be provided by the Corporation hereunder shall be in writing and delivered personally, by email at the email address of such Holder appearing on the books of the Corporation, or if no such email address appears on the books of the Corporation, sent by a nationally recognized overnight courier service addressed to each Holder, at the principal place of business of such Holder. Any notice or other communication or deliveries hereunder shall be deemed given and effective on the earliest of (i) the date of transmission, if such notice or communication is delivered via email at the email address specified in this Section prior to 5:30 p.m. (New York City time) on any date, (ii) the date immediately following the date of transmission, if such notice or communication is delivered via email at the email address specified in this Section between 5:30 p.m. and 11:59 p.m. (New York City time) on any date, (iii) the second Business Day following the date of mailing, if sent by nationally recognized overnight courier service, or (iv) upon actual receipt by the party to whom such notice is required to be given.

(b) Lost or Mutilated Series X1 Preferred Stock Certificate. If a Holder's Series X1 Preferred Stock certificate shall be mutilated, lost, stolen or destroyed, the Corporation shall execute and deliver, in exchange and substitution for and upon cancellation of a mutilated certificate, or in lieu of or in substitution for a lost, stolen or destroyed certificate, a new certificate for the shares of Series X1 Preferred Stock so mutilated, lost, stolen or destroyed, but only upon receipt of evidence of such loss, theft or destruction of such certificate, and of the ownership thereof, reasonably satisfactory to the Corporation and, in each case, customary and reasonable indemnity, if requested. Applicants for a new certificate under such circumstances shall also comply with such other reasonable regulations and procedures and pay such other reasonable third-party costs as the Corporation may prescribe.

(c) Waiver. Any waiver by the Corporation or a Holder of a breach of any provision of this Certificate of Designation shall not operate as or be construed to be a waiver of any other breach of such provision or of any breach of any other provision of this Certificate of Designation or a waiver by any other Holders. The failure of the Corporation or a Holder to insist upon strict adherence to any term of this Certificate of Designation on one or more occasions shall not be considered a waiver or deprive that party (or any other Holder) of the right thereafter to insist upon strict adherence to that term or any other term of this Certificate of Designation. Any waiver by the Corporation or a Holder must be in writing. Notwithstanding any provision in this Certificate of Designation to the contrary, any provision contained herein and any right of the Holders of Series X1 Preferred Stock granted hereunder may be waived as to all shares of Series X1 Preferred Stock (and the Holders thereof) upon the written consent of the Holders of not less than a majority of the shares of Series X1 Preferred Stock then outstanding, unless a higher percentage is required by the DGCL, in which case the written consent of the Holders of not less than such higher percentage shall be required.

(d) Severability. If any provision of this Certificate of Designation is invalid, illegal or unenforceable, the balance of this Certificate of Designation shall remain in effect, and if any provision is inapplicable to any Person or circumstance, it shall nevertheless remain applicable to all other Persons and circumstances. If it shall be found that any interest or other amount deemed interest due hereunder violates the applicable law governing usury, the applicable rate of interest due hereunder shall automatically be lowered to equal the maximum rate of interest permitted under applicable law.

(e) Next Business Day. Whenever any payment or other obligation hereunder shall be due on a day other than a Business Day, such payment shall be made on the next succeeding Business Day.

(f) Headings. The headings contained herein are for convenience only, do not constitute a part of this Certificate of Designation and shall not be deemed to limit or affect any of the provisions hereof.

(g) Status of Converted Series X¹ Preferred Stock. If any shares of Series X¹ Preferred Stock shall be converted or redeemed by the Corporation, such shares shall resume the status of authorized but unissued shares of preferred stock and shall no longer be designated as Series X¹ Preferred Stock.

IN WITNESS WHEREOF, the undersigned has executed this Certificate of Designation this 5th day of April, 2021.

/s/ David H. Kirske

By: David H. Kirske

Title: Chief Financial Officer

ANNEX A

NOTICE OF CONVERSION

(TO BE EXECUTED BY THE REGISTERED HOLDER IN ORDER TO CONVERT SHARES OF SERIES X1 PREFERRED STOCK)

The undersigned Holder hereby irrevocably elects to convert the number of shares of Series X1 Preferred Stock indicated below, [represented by stock certificate No(s).] [represented in book-entry form], into shares of common stock, par value \$0.001 per share (the "**Common Stock**"), of CTI BioPharma Corp., a Delaware corporation (the "**Corporation**"), as of the date written below. If securities are to be issued in the name of a person other than the undersigned, the undersigned will pay all transfer taxes payable with respect thereto. Capitalized terms utilized but not defined herein shall have the meaning ascribed to such terms in that certain Certificate of Designation of Preferences, Rights and Limitations of Series X1 Convertible Preferred Stock (the "**Certificate of Designation** ") filed by the Corporation with the Secretary of State of the State of Delaware on April 5, 2021.

As of the date hereof, the number of shares of Common Stock beneficially owned by the undersigned Holder (together with such Holder's Affiliates, and any other Person whose beneficial ownership of Common Stock would be aggregated with the Holder's for purposes of Section 13(d) or Section 16 of the Exchange Act and the applicable regulations of the Commission, including any "group" of which the Holder is a member (the foregoing, "**Attribution Parties**")), including the number of shares of Common Stock issuable upon conversion of the Series X1 Preferred Stock subject to this Notice of Conversion, but excluding the number of shares of Common Stock which are issuable upon (A) conversion of the remaining, unconverted Series X1 Preferred Stock beneficially owned by such Holder or any of its Attribution Parties, and (B) exercise or conversion of the unexercised or unconverted portion of any other securities of the Corporation (including any warrants) beneficially owned by such Holder or any of its Attribution Parties that are subject to a limitation on conversion or exercise similar to the limitation contained in Section 6(c) of the Certificate of Designation, is % . For purposes hereof, beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act and the applicable regulations of the Commission. In addition, for purposes hereof, "group" has the meaning set forth in Section 13(d) of the Exchange Act and the applicable regulations of the Commission.

Conversion calculations:

Date to Effect Conversion:

Number of shares of Series X1 Preferred Stock owned prior to Conversion:

Number of shares of Series X1 Preferred Stock to be Converted:

Number of shares of Common Stock to be Issued:

Address for delivery of physical certificates:

or

for DWAC Delivery:

DWAC Instructions:

Broker no:

Account no:

HOLDER

By: _____

Name:

Title:

Date:

April 6, 2021

CTI BioPharma Corp.
3101 Western Avenue, Suite 800
Seattle, WA 98121

Re: *CTI BioPharma Corp. Registration Statement on Form S-3 (File No. 333-251161)*

Ladies and Gentlemen:

We have examined the Registration Statement on Form S-3, File No. 333-251161 (the "Registration Statement"), of CTI BioPharma Corp., a Delaware corporation (the "Company"), filed with the Securities and Exchange Commission (the "Commission") pursuant to the Securities Act of 1933, as amended (the "Securities Act"), and the prospectus supplement thereto dated March 31, 2021 (the "Prospectus Supplement"), in connection with the offering by the Company of 16,399,920 shares (the "Common Shares") of common stock, par value \$0.001 per share (the "Common Stock"), which includes 2,139,120 shares sold pursuant to the exercise in full of an option to purchase additional shares granted to the Underwriters, and 600 shares of Series X1 preferred stock, par value \$0.001 per share (the "Preferred Shares" and, together with the Common Shares, the "Shares"), convertible into 6,000,000 shares of Common Stock (the "Conversion Shares").

In arriving at the opinion expressed below, we have examined originals, or copies certified or otherwise identified to our satisfaction as being true and complete copies of the originals, of specimen Common Stock certificate and such other documents, corporate records, certificates of officers of the Company and of public officials and other instruments as we have deemed necessary or advisable to enable us to render the opinions set forth below. In our examination, we have assumed without independent investigation the genuineness of all signatures, the legal capacity and competency of all natural persons, the authenticity of all documents submitted to us as originals and the conformity to original documents of all documents submitted to us as copies.

Based upon the foregoing, and subject to the assumptions, exceptions, qualifications and limitations set forth herein, we are of the opinion that the Shares, when issued against payment therefor as set forth in the Registration Statement and the Prospectus Supplement thereto, and the Conversion Shares, when issued upon conversion of the Preferred Shares in accordance with the terms of the Certificate of Designation of Preferences, Rights and Limitations of Series X1 Convertible Preferred Stock, will, in each case, be validly issued, fully paid and non-assessable.

We consent to the filing of this opinion as an exhibit to the Registration Statement, and we further consent to the use of our name under the caption "Legal Matters" in the Registration Statement and the Prospectus Supplement. In giving these consents, we do not thereby admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act or the Rules and Regulations of the Commission.

Very truly yours,

/s/ Gibson, Dunn & Crutcher LLP