

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 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): November 6, 2022

BIO-PATH HOLDINGS, INC.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction
of incorporation)

001-36333

(Commission File Number)

87-0652870

(IRS Employer Identification No.)

4710 Bellaire Boulevard, Suite 210, Bellaire, Texas

(Address of principal executive offices)

77401

(Zip Code)

(832) 742-1357

(Registrant's Telephone Number, Including Area Code)

(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	Name of each exchange on which registered
Common Stock, par value \$0.001 per share	BPTH	The Nasdaq Capital Market

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

Emerging growth company

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

Item 1.01 Entry Into a Material Definitive Agreement.

On November 6, 2022, Bio-Path Holdings, Inc. (the “Company”) and several institutional and accredited investors entered into securities purchase agreements (the “Purchase Agreements”), pursuant to which the Company agreed to sell, in a registered direct offering (the “Registered Direct Offering”), an aggregate of 800,000 shares (the “Shares”) of its common stock, par value \$0.001 per share (“Common Stock”), for a purchase price per Share of \$2.50 and gross proceeds of approximately \$2.0 million.

The Shares will be issued pursuant to a prospectus supplement dated as of November 6, 2022, which was filed with the Securities and Exchange Commission in connection with a takedown from the Company’s shelf registration statement on Form S-3 (File No. 333-265282), which became effective on June 14, 2022, and the base prospectus dated as of June 14, 2022 contained in such registration statement.

In a concurrent private placement (the “Private Placement”), the Company also agreed pursuant to the Purchase Agreements to issue to the investors in the Registered Direct Offering warrants to purchase up to 800,000 shares of Common Stock (the “Common Warrants”), which represent 100% of the number of shares of Common Stock purchased in the Registered Direct Offering. Subject to certain ownership limitations, the Common Warrants will be exercisable beginning six months after issuance, have a term of five and one-half years from issuance and have an exercise price of \$2.85 per share. The number of shares issuable upon exercise of the Common Warrants and the exercise price of the Common Warrants are adjustable in the event of stock splits, stock dividends, combinations of shares and similar recapitalization transactions.

Neither the Common Warrants nor the shares of Common Stock issuable upon exercise of the Common Warrants (the “Common Warrant Shares”) will be registered under the Securities Act of 1933, as amended (the “Securities Act”), or any state securities laws. The Common Warrants and the Common Warrant Shares will be issued in reliance on the exemptions from registration provided by Section 4(a)(2) under the Securities Act and Regulation D promulgated thereunder. Each investor who entered into to a Purchase Agreement has represented that it is an accredited investor, as defined in Rule 501 of Regulation D promulgated under the Securities Act.

On November 6, 2022, the Company entered into an engagement letter (the “Engagement Letter”) with ROTH Capital Partners, LLC (the “Placement Agent”). Also on November 6, 2022, the Company entered into a placement agency agreement (the “Placement Agency Agreement”) with the Placement Agent. Pursuant to the Engagement Letter and the Placement Agency Agreement, the Placement Agent agreed to serve as the exclusive placement agent for the Company, on a reasonable best efforts basis, in connection with the Registered Direct Offering and the Private Placement. The Company has agreed to pay the Placement Agent an aggregate cash fee equal to 7.0% of the gross proceeds received in the Registered Direct Offering and the Private Placement. The Company will also reimburse the Placement Agent for reasonable out of pocket expenses incurred by the Placement Agent in connection with its engagement, including reasonable fees and disbursements of its counsel, of up to \$50,000.

The net proceeds to the Company from the Registered Direct Offering, after deducting the Placement Agent’s fees and expenses and the Company’s estimated offering expenses, and excluding the proceeds, if any, from the exercise of the Common Warrants, are expected to be approximately \$1.7 million. The Registered Direct Offering and the Private Placement are expected to close on or about November 9, 2022, subject to the satisfaction of customary closing conditions. The Company currently intends to use these net proceeds for working capital and general corporate purposes.

The legal opinion of Winstead PC relating to the legality of the issuance and sale of the Shares in the Registered Direct Offering is attached as Exhibit 5.1 to this Current Report on Form 8-K.

The description of terms and conditions of the Engagement Letter, the Placement Agency Agreement, the form of Purchase Agreement and the form of Common Warrant set forth herein do not purport to be complete and are qualified in their entirety by the full text of the Engagement Letter, Placement Agency Agreement, form of Purchase Agreement and form of Common Warrant, which are attached hereto as Exhibits 99.1, 99.2, 10.1 and 4.1, respectively.

Item 3.02 Unregistered Sales of Equity Securities.

The information contained above in Item 1.01 regarding the Common Warrants and the Common Warrant Shares is hereby incorporated by reference into this Item 3.02.

Item 7.01 Regulation FD Disclosure.

On November 7, 2022, the Company issued a press release regarding the transactions described above under Item 1.01 of this Current Report on Form 8-K. A copy of the press release is attached hereto as Exhibit 99.3.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits.

Exhibit Number	Description
4.1*	Form of Common Warrant
5.1*	Opinion of Winstead PC
10.1*	Form of Securities Purchase Agreement
23.1*	Consent of Winstead PC (included in Exhibit 5.1)
99.1*	Engagement Letter, dated as of November 6, 2022, by and between Bio-Path Holdings, Inc. and ROTH Capital Partners, LLC
99.2*	Placement Agency Agreement, dated as of November 6, 2022, by and between Bio-Path Holdings, Inc. and ROTH Capital Partners, LLC
99.3*	Press Release dated November 7, 2022

104 The cover page from this Current Report on Form 8-K, formatted in Inline XBRL (included as Exhibit 101).

* Filed herewith.

SIGNATURES

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

BIO-PATH HOLDINGS, INC.

Dated: November 9, 2022

By: /s/ Peter H. Nielsen

Peter H. Nielsen

President and Chief Executive Officer

EXHIBIT INDEX

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104	The cover page from this Current Report on Form 8-K, formatted in Inline XBRL (included as Exhibit 101).
* Filed herewith.	

NEITHER THIS SECURITY NOR THE SECURITIES FOR WHICH THIS SECURITY IS EXERCISABLE HAVE BEEN REGISTERED WITH THE SECURITIES AND EXCHANGE COMMISSION OR THE SECURITIES COMMISSION OF ANY STATE IN RELIANCE UPON AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), AND, ACCORDINGLY, MAY NOT BE TRANSFERRED UNLESS (I) SUCH SECURITIES HAVE BEEN REGISTERED FOR SALE PURSUANT TO THE SECURITIES ACT, (II) SUCH SECURITIES MAY BE SOLD PURSUANT TO RULE 144, OR (III) THE COMPANY HAS RECEIVED AN OPINION OF COUNSEL REASONABLY SATISFACTORY TO IT THAT SUCH TRANSFER MAY LAWFULLY BE MADE WITHOUT REGISTRATION UNDER THE SECURITIES ACT. THIS SECURITY AND THE SECURITIES ISSUABLE UPON EXERCISE OF THIS SECURITY MAY BE PLEDGED IN CONNECTION WITH A BONA FIDE MARGIN ACCOUNT WITH A REGISTERED BROKER-DEALER OR OTHER LOAN WITH A FINANCIAL INSTITUTION THAT IS AN "ACCREDITED INVESTOR" AS DEFINED IN RULE 501(a) UNDER THE SECURITIES ACT OR OTHER LOAN SECURED BY SUCH SECURITIES.

COMMON STOCK PURCHASE WARRANT

BIO-PATH HOLDINGS, INC.

Warrant Shares: _____

Issue Date: [], 2022

Initial Exercise Date: [], 2023¹

THIS COMMON STOCK PURCHASE WARRANT (the "Warrant") certifies that, for value received, _____ or its assigns (the "Holder") is entitled, upon the terms and subject to the limitations on exercise and the conditions hereinafter set forth, at any time on or after _____ (the "Initial Exercise Date") and on or prior to 5:00 p.m. (New York City time) on [], 2028² (the "Termination Date") but not thereafter, to subscribe for and purchase from Bio-Path Holdings, Inc., a Delaware corporation (the "Company"), up to _____ shares (as subject to adjustment hereunder, the "Warrant Shares") of Common Stock. The purchase price of one share of Common Stock under this Warrant shall be equal to the Exercise Price, as defined in Section 2(b).

Section 1. Definitions. Capitalized terms used and not otherwise defined herein shall have the meanings set forth in that certain Securities Purchase Agreement (the "Purchase Agreement"), dated November [], 2022, among the Company and the purchasers signatory thereto.

¹ 6 months following Closing.

² 5.5 years following Closing.

Section 2. Exercise.

a) Exercise of the purchase rights represented by this Warrant may be made, in whole or in part, at any time or times on or after the Initial Exercise Date and on or before the Termination Date by delivery to the Company of a duly executed facsimile copy (or e-mail attachment) of the Notice of Exercise in the form annexed hereto (the “Notice of Exercise”). If the Holder exercises any portion of this Warrant by cashless exercise pursuant to Section 2(c), then the Notice of Exercise shall include the VWAP and Bid Price (each as defined below) used by the Holder in calculating the Warrant Shares to be issued pursuant to Section 2(c) so that the Company may independently confirm the Holder’s calculations. Within the earlier of (i) two (2) Trading Days and (ii) the number of Trading Days comprising the Standard Settlement Period (as defined in Section 2(d)(i) herein) following the date of exercise as aforesaid, the Holder shall deliver the aggregate Exercise Price for the Warrant Shares specified in the applicable Notice of Exercise by wire transfer or cashier’s check drawn on a United States bank unless the cashless exercise procedure specified in Section 2(c) below is specified in the applicable Notice of Exercise. No ink-original Notice of Exercise shall be required, nor shall any medallion guarantee (or other type of guarantee or notarization) of any Notice of Exercise be required. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company until the Holder has purchased all of the Warrant Shares available hereunder and the Warrant has been exercised in full, in which case, the Holder shall surrender this Warrant to the Company for cancellation within five (5) Trading Days of the date on which the final Notice of Exercise is delivered to the Company. Partial exercises of this Warrant resulting in purchases of a portion of the total number of Warrant Shares available hereunder shall have the effect of lowering the outstanding number of Warrant Shares purchasable hereunder in an amount equal to the applicable number of Warrant Shares purchased. The Holder and the Company shall maintain records showing the number of Warrant Shares purchased and the date of such purchases. The Company may object to any Notice of Exercise that the Company reasonably determines does not comply with the requirements set forth herein, provided that the Company must deliver any such objection within one (1) Business Day of receipt of such notice. **The Holder and any assignee, by acceptance of this Warrant, acknowledge and agree that, by reason of the provisions of this paragraph, following the purchase of a portion of the Warrant Shares hereunder, the number of Warrant Shares available for purchase hereunder at any given time may be less than the amount stated on the face hereof.**

b) Exercise Price. The exercise price per share of the Common Stock under this Warrant shall be **\$2.85**, subject to adjustment hereunder (the “Exercise Price”).

c) Cashless Exercise. If at the time of exercise hereof there is no effective registration statement registering, or the prospectus contained therein is not available for the resale of the Warrant Shares by the Holder, then this Warrant may also be exercised, in whole or in part, at such time by means of a “cashless exercise” in which the Holder shall be entitled to receive a number of Warrant Shares equal to the quotient obtained by dividing [(A-B) (X)] by (A), where:

(A) = as applicable: (i) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise if such Notice of Exercise is (1) both executed and delivered pursuant to Section 2(a) hereof on a day that is not a Trading Day or (2) both executed and delivered pursuant to Section 2(a) hereof on a Trading Day prior to the opening of “regular trading hours” (as defined in Rule 600(b)(64) of Regulation NMS promulgated under the federal securities laws) on such Trading Day, (ii) the Bid Price of the Common Stock on the principal Trading Market as reported by Bloomberg L.P. as of the time of the Holder’s execution of the applicable Notice of Exercise if such Notice of Exercise is executed during “regular trading hours” on a Trading Day and is delivered within two (2) hours thereafter pursuant to Section 2(a) hereof or (iii) the VWAP on the date of the applicable Notice of Exercise if the date of such Notice of Exercise is a Trading Day and such Notice of Exercise is both executed and delivered pursuant to Section 2(a) hereof after the close of “regular trading hours” on such Trading Day;

(B) = the Exercise Price of this Warrant, as adjusted hereunder; and

(X) = the number of Warrant Shares that would be issuable upon exercise of this Warrant in accordance with the terms of this Warrant if such exercise were by means of a cash exercise rather than a cashless exercise.

If Warrant Shares are issued in such a cashless exercise, the parties acknowledge and agree that in accordance with Section 3(a)(9) of the Securities Act, the Warrant Shares shall take on the characteristics of the Warrants being exercised. The Company agrees not to take any position contrary to this Section 2(c).

“Bid Price” means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the bid price of the Common Stock for the time in question (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if OTCQB or OTCQX is not a Trading Market, the volume weighted average price of the Common Stock for such date (or the nearest preceding date) on OTCQB or OTCQX as applicable, (c) if the Common Stock is not then listed or quoted for trading on OTCQB or OTCQX and if prices for the Common Stock are then reported on The Pink Open Market published by OTC Markets Group, Inc. (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of the Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as mutually determined by the Company and the Holder, provided that, if the Company and the Holder are unable to agree upon the fair market value of such Common Stock, then the fair market value will be determined by an independent appraiser selected in good faith by the Purchasers of a majority in interest of the Securities then outstanding and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

“VWAP” means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the daily volume weighted average price of the Common Stock for such date (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if OTCQB or OTCQX is not a Trading Market, the volume weighted average price of the Common Stock for such date (or the nearest preceding date) on OTCQB or OTCQX as applicable, (c) if the Common Stock is not then listed or quoted for trading on OTCQB or OTCQX and if prices for the Common Stock are then reported in the Pink Open Markets (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of the Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as mutually determined by the Company and the Holder, provided that, if the Company and the Holder are unable to agree upon the fair market value of such Common Stock, then the fair market value will be determined by an independent appraiser selected in good faith by the Purchasers of a majority in interest of the Securities then outstanding and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

d) Mechanics of Exercise.

i. Delivery of Warrant Shares Upon Exercise. The Company shall cause the Warrant Shares purchased hereunder to be transmitted by the Transfer Agent to the Holder by crediting the account of the Holder’s or its designee’s balance account with The Depository Trust Company through its Deposit or Withdrawal at Custodian system (“DWAC”) if the Company is then a participant in such system and either (A) there is an effective registration statement permitting the issuance of the Warrant Shares to or resale of the Warrant Shares by Holder or (B) the Warrant Shares are eligible for resale by the Holder without volume or manner of sale limitations pursuant to Rule 144 (assuming this Warrant is being exercised via cashless exercise), and otherwise by physical delivery of a certificate, registered in the Company’s share register in the name of the Holder or its designee, for the number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the address specified by the Holder in the Notice of Exercise by the date that is the earliest of (i) two (2) Trading Days after the delivery to the Company of the Notice of Exercise, (ii) one (1) Trading Day after delivery of the aggregate Exercise Price to the Company and (iii) the number of Trading Days comprising the Standard Settlement Period after the delivery to the Company of the Notice of Exercise (such date, the “Warrant Share Delivery Date”). Upon delivery of the Notice of Exercise, the Holder shall be deemed for all corporate purposes to have become the holder of record of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date of delivery of the Warrant Shares, provided that payment of the aggregate Exercise Price (other than in the case of a cashless exercise) is received within the earlier of (i) two (2) Trading Days and (ii) the number of Trading Days comprising the Standard Settlement Period, in each case, following delivery of the Notice of Exercise. If the Company fails for any reason to deliver to the Holder the Warrant Shares subject to a Notice of Exercise by the Warrant Share Delivery Date, the Company shall pay to the Holder, in cash, as liquidated damages and not as a penalty, for each \$1,000 of Warrant Shares subject to such exercise (based on the VWAP of the Common Stock on the date of the applicable Notice of Exercise), \$10 per Trading Day (increasing to \$20 per Trading Day on the fifth Trading Day after such liquidated damages begin to accrue) for each Trading Day after such Warrant Share Delivery Date until such Warrant Shares are delivered or Holder rescinds such exercise. The Company agrees to maintain a transfer agent that is a participant in the FAST program so long as this Warrant remains outstanding and exercisable. As used herein, “Standard Settlement Period” means the standard settlement period, expressed in a number of Trading Days, on the Company’s primary Trading Market with respect to the Common Stock as in effect on the date of delivery of the Notice of Exercise.

ii. Delivery of New Warrants Upon Exercise. If this Warrant shall have been exercised in part, the Company shall, at the request of a Holder and upon surrender of this Warrant certificate, at the time of delivery of the Warrant Shares, deliver to the Holder a new Warrant evidencing the rights of the Holder to purchase the unpurchased Warrant Shares called for by this Warrant, which new Warrant shall in all other respects be identical with this Warrant.

iii. Rescission Rights. If the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares pursuant to Section 2(d)(i) by the Warrant Share Delivery Date, then the Holder will have the right to rescind such exercise.

iv. Compensation for Buy-In on Failure to Timely Deliver Warrant Shares Upon Exercise. In addition to any other rights available to the Holder, if the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares in accordance with the provisions of Section 2(d)(i) above pursuant to an exercise on or before the Warrant Share Delivery Date, and if after such date the Holder is required by its broker 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 the Holder of the Warrant Shares which the Holder anticipated receiving upon such exercise (a "Buy-In"), then the Company shall (A) pay in cash to the Holder the amount, if any, by which (x) the Holder's total purchase price (including brokerage commissions, if any) for the shares of Common Stock so purchased exceeds (y) the amount obtained by multiplying (1) the number of Warrant Shares that the Company was required to deliver to the Holder in connection with the exercise at issue times (2) the price at which the sell order giving rise to such purchase obligation was executed, and (B) at the option of the Holder, either reinstate the portion of the Warrant and equivalent number of Warrant Shares for which such exercise was not honored (in which case such exercise shall be deemed rescinded) or deliver to the Holder the number of shares of Common Stock that would have been issued had the Company timely complied with its exercise and delivery obligations hereunder. For example, if the Holder purchases Common Stock having a total purchase price of \$11,000 to cover a Buy-In with respect to an attempted exercise of shares of Common Stock with an aggregate sale price giving rise to such purchase obligation of \$10,000, under clause (A) of the immediately preceding sentence the Company shall be required to pay the Holder \$1,000. The Holder shall provide the Company written notice indicating the amounts payable to the Holder in respect of the Buy-In and, upon request of the Company, evidence of the amount of such loss. 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 Company's failure to timely deliver shares of Common Stock upon exercise of the Warrant as required pursuant to the terms hereof.

v. No Fractional Shares or Scrip. No fractional shares or scrip representing fractional shares shall be issued upon the exercise of this Warrant. As to any fraction of a share which the Holder would otherwise be entitled to purchase upon such exercise, the Company shall, at its election, either pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the Exercise Price or round up to the next whole share.

vi. Charges, Taxes and Expenses. Issuance of Warrant Shares shall be made without charge to the Holder for any issue or transfer tax or other incidental expense in respect of the issuance of such Warrant Shares, all of which taxes and expenses shall be paid by the Company, and such Warrant Shares shall be issued in the name of the Holder or in such name or names as may be directed by the Holder; provided, however, that in the event that Warrant Shares are to be issued in a name other than the name of the Holder, this Warrant when surrendered for exercise shall be accompanied by the Assignment Form attached hereto duly executed by the Holder and the Company may require, as a condition thereto, the payment of a sum sufficient to reimburse it for any transfer tax incidental thereto. The Company shall pay all Transfer Agent fees required for same-day processing of any Notice of Exercise and all fees to the Depository Trust Company (or another established clearing corporation performing similar functions) required for same-day electronic delivery of the Warrant Shares.

vii. Closing of Books. The Company will not close its stockholder books or records in any manner which prevents the timely exercise of this Warrant, pursuant to the terms hereof.

e) Holder's Exercise Limitations. The Company shall not effect any exercise of this Warrant, and a Holder shall not have the right to exercise any portion of this Warrant, pursuant to Section 2 or otherwise, to the extent that after giving effect to such issuance after exercise as set forth on the applicable Notice of Exercise, the Holder (together with the Holder's Affiliates, and any other Persons acting as a group together with the Holder or any of the Holder's Affiliates (such Persons, "Attribution Parties")), would beneficially own 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 the Holder and its Affiliates and Attribution Parties shall include the number of shares of Common Stock issuable upon exercise of this Warrant with respect to which such determination is being made, but shall exclude the number of shares of Common Stock which would be issuable upon (i) exercise of the remaining, nonexercised portion of this Warrant beneficially owned by the Holder or any of its Affiliates or Attribution Parties and (ii) exercise or conversion of the unexercised or nonconverted portion of any other securities of the Company (including, without limitation, any other Common Stock Equivalents) subject to a limitation on conversion or exercise analogous to the limitation contained herein beneficially owned by the Holder or any of its Affiliates or Attribution Parties. Except as set forth in the preceding sentence, for purposes of this Section 2(e), beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder, it being acknowledged by the Holder that the Company is not representing to the Holder that such calculation is in compliance with Section 13(d) of the Exchange Act and the Holder is solely responsible for any schedules required to be filed in accordance therewith. To the extent that the limitation contained in this Section 2(e) applies, the determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable shall be in the sole discretion of the Holder, and the submission of a Notice of Exercise shall be deemed to be the Holder's determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable, in each case subject to the Beneficial Ownership Limitation, and the Company shall have no obligation to verify or confirm the accuracy of such determination and shall have no liability for exercises of the Warrant that are not in compliance with the Beneficial Ownership Limitation, except to the extent the Holder relies on the number of outstanding shares of Common Stock that was provided by the Company. In addition, a determination as to any group status as contemplated above shall be determined in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder, and the Company shall have no obligation to verify or confirm the accuracy of such determination and shall have no liability for exercises of the Warrant that are not in compliance with the Beneficial Ownership Limitation, except to the extent the Holder relies on the number of outstanding shares of Common Stock that was provided by the Company. For purposes of this Section 2(e), in determining the number of outstanding shares of Common Stock, a Holder may rely on the number of outstanding shares of Common Stock as reflected in (A) the Company's most recent periodic or annual report filed with the Commission, as the case may be, (B) a more recent public announcement by the Company or (C) a more recent written notice by the Company or the Transfer Agent setting forth the number of shares of Common Stock outstanding. Upon the written request of a Holder, the Company shall within one Trading Day confirm orally and in writing to the Holder 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 the conversion or exercise of securities of the Company, including this Warrant, by the Holder or its Affiliates or Attribution Parties since the date as of which such number of outstanding shares of Common Stock was reported. The "Beneficial Ownership Limitation" shall be [4.99%/9.99%] of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock issuable upon exercise of this Warrant. The Holder, upon notice to the Company, may increase or decrease the Beneficial Ownership Limitation provisions of this Section 2(e), provided that the Beneficial Ownership Limitation in no event exceeds 9.99% of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock upon exercise of this Warrant held by the Holder and the provisions of this Section 2(e) shall continue to apply. Any increase in the Beneficial Ownership Limitation will not be effective until the 61st day after such notice is delivered to the Company. The provisions of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 2(e) to correct this paragraph (or any portion hereof) which may be defective or inconsistent with the intended Beneficial Ownership Limitation herein contained or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitations contained in this paragraph shall apply to a successor holder of this Warrant.

f) No Cash Settlement. Without limiting the cashless exercise provision in Section 2(c), the liquidated damages provision in Section 2(d)(i) or the buy-in provision in Section 2(d)(iv), in the event that the Company does not have an effective registration statement registering, or the prospectus contained therein is not available for the issuance of, the Warrant Shares to the Holder, there is no circumstance that would require the Company to cash settle the warrants.

Section 3. Certain Adjustments.

a) Stock Dividends and Splits. If the Company, at any time while this Warrant is outstanding: (i) pays a stock dividend or otherwise makes a distribution or distributions on shares of its Common Stock or any other equity or equity equivalent securities payable in shares of Common Stock (which, for avoidance of doubt, shall not include any shares of Common Stock issued by the Company upon exercise of this Warrant), (ii) subdivides outstanding shares of Common Stock into a larger number of shares, (iii) combines (including by way of reverse stock split) outstanding shares of Common Stock into a smaller number of shares, or (iv) issues by reclassification of shares of the Common Stock any shares of capital stock of the Company, then in each case the Exercise Price shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock (excluding treasury shares, if any) outstanding immediately before such event and of which the denominator shall be the number of shares of Common Stock outstanding immediately after such event, and the number of shares issuable upon exercise of this Warrant shall be proportionately adjusted such that the aggregate Exercise Price of this Warrant shall remain unchanged. Any adjustment made pursuant to this Section 3(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, combination or re-classification.

b) Subsequent Rights Offerings. In addition to any adjustments pursuant to Section 3(a) above, if at any time the Company grants, issues or sells any Common Stock Equivalents or rights to purchase stock, warrants, securities or other property pro rata to the record holders of any class of shares of Common Stock (the "Purchase Rights"), then the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the grant, issue or sale of such Purchase Rights (provided, however, to the extent that the Holder's right to participate in any such Purchase Right would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Purchase Right to such extent (or beneficial ownership of such shares of Common Stock as a result of such Purchase Right to such extent) and such Purchase Right to such extent shall be held in abeyance for the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

c) Pro Rata Distributions. During such time as this Warrant is outstanding, if the Company shall declare or make any dividend or other distribution of its assets (or rights to acquire its assets) to holders of shares of Common Stock, by way of return of capital or otherwise (including, without limitation, any distribution of cash, stock or other securities, property or options by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) (a "Distribution"), at any time after the issuance of this Warrant, then, in each such case, the Holder shall be entitled to participate in such Distribution to the same extent that the Holder would have participated therein if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date of which a record is taken for such Distribution, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the participation in such Distribution (provided, however, to the extent that the Holder's right to participate in any such Distribution would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Distribution to such extent (or in the beneficial ownership of any shares of Common Stock as a result of such Distribution to such extent) and the portion of such Distribution shall be held in abeyance for the benefit of the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

d) Fundamental Transaction. If, at any time while this Warrant is outstanding, (i) the Company, directly or indirectly, in one or more related transactions effects any merger or consolidation of the Company with or into another Person, (ii) the Company or any Subsidiary, directly or indirectly, effects any sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of its assets in one or a series of related transactions, (iii) any, direct or indirect, purchase offer, tender offer or exchange offer (whether by the Company or another Person) is completed pursuant to which holders of Common Stock are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of greater than 50% of the outstanding Common Stock or greater than 50% of the voting power of the common equity of the Company, (iv) the Company, directly or indirectly, in one or more related transactions effects any reclassification, reorganization or recapitalization of the Common Stock or any compulsory share exchange pursuant to which the Common Stock is effectively converted into or exchanged for other securities, cash or property, or (v) the Company, directly or indirectly, in one or more related transactions consummates a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off, merger or scheme of arrangement) with another Person or group of Persons whereby such other Person or group acquires greater than 50% of the outstanding shares of Common Stock or greater than 50% of the voting power of the common equity of the Company (each a "Fundamental Transaction"), then, upon any subsequent exercise of this Warrant, the Holder shall have the right to receive, for each Warrant Share that would have been issuable upon such exercise immediately prior to the occurrence of such Fundamental Transaction, at the option of the Holder (without regard to any limitation in Section 2(e) on the exercise of this Warrant), the number of shares of Common Stock of the successor or acquiring corporation or of the Company, if it is the surviving corporation, and any additional consideration (the "Alternate Consideration") receivable as a result of such Fundamental Transaction by a holder of the number of shares of Common Stock for which this Warrant is exercisable immediately prior to such Fundamental Transaction (without regard to any limitation in Section 2(e) on the exercise of this Warrant). For purposes of any such exercise, the determination of the Exercise Price 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 Company shall apportion the Exercise Price among the Alternate Consideration 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 Holder shall be given the same choice as to the Alternate Consideration it receives upon any exercise of this Warrant following such Fundamental Transaction. Notwithstanding anything to the contrary, in the event of a Fundamental Transaction, the Company or any Successor Entity (as defined below) shall, at the Holder's option, exercisable at any time concurrently with, or within 30 days after, the consummation of the Fundamental Transaction (or, if later, the date of the public announcement of the applicable Fundamental Transaction), purchase this Warrant from the Holder by paying to the Holder an amount of cash equal to the Black Scholes Value (as defined below) of the remaining unexercised portion of this Warrant on the date of the consummation of such Fundamental Transaction; provided, however, that, if the Fundamental Transaction is not within the Company's control, including not approved by the Company's Board of Directors, Holder shall not have the option to require the Company to purchase this Warrant. "Black Scholes Value" means the value of this Warrant based on the Black-Scholes Option Pricing Model obtained from the "OV" function on Bloomberg, L.P. ("Bloomberg") determined as of the day of consummation of the applicable contemplated Fundamental Transaction for pricing purposes and reflecting (A) a risk-free interest rate corresponding to the U.S. Treasury rate for a period equal to the time between the date of the public announcement of the applicable Fundamental Transaction and the Termination Date, (B) an expected volatility equal to the 100 day volatility obtained from the HVT function on Bloomberg (determined utilizing a 365 day annualization factor) as of the Trading Day immediately following the public announcement of the applicable contemplated Fundamental Transaction, (C) the underlying price per share used in such calculation shall be the sum of the price per share being offered in cash, if any, plus the value of any non-cash consideration, if any, being offered in such Fundamental Transaction, (D) a remaining option time equal to the time between the date of the public announcement of the applicable contemplated Fundamental Transaction and the Termination Date; and (E) a zero cost of borrow. The payment of the Black Scholes Value will be made by wire transfer of immediately available funds (or such other consideration) within five Business Days of the Holder's election (or, if later, on the date of the consummation of the Fundamental Transaction). The Company shall cause any successor entity in a Fundamental Transaction in which the Company is not the survivor (the "Successor Entity") to assume in writing all of the obligations of the Company under this Warrant in accordance with the provisions of this Section 3(d) pursuant to written agreements in form and substance reasonably satisfactory to the Holder and approved by the Holder (without unreasonable delay) prior to such Fundamental Transaction and shall, at the option of the Holder, deliver to the Holder in exchange for this Warrant a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Warrant which is exercisable for a corresponding number of shares of capital stock of such Successor Entity (or its parent entity) equivalent to the shares of Common Stock acquirable and receivable upon exercise of this Warrant (without regard to any limitations on the exercise of this Warrant) prior to such Fundamental Transaction, and with an exercise price which applies the exercise price hereunder to such shares of capital stock (but taking into account the relative value of the shares of Common Stock pursuant to such Fundamental Transaction and the value of such shares of capital stock, such number of shares of capital stock and such exercise price being for the purpose of protecting the economic value of this Warrant immediately prior to the consummation of such Fundamental Transaction), and which is reasonably satisfactory in form and substance to the Holder. Upon the occurrence of any such Fundamental Transaction, the Successor Entity shall be added to the term "Company" under this Warrant (so that from and after the occurrence or consummation of such Fundamental Transaction, each and every provision of this Warrant and the other Transaction Documents referring to the "Company" shall refer instead to each of the Company and the Successor Entity or Successor Entities, jointly and severally), and the Successor Entity or Successor Entities, jointly and severally with the Company, may exercise every right and power of the Company prior thereto and the Successor Entity or Successor Entities shall assume all of the obligations of the Company prior thereto under this Warrant and the other Transaction Documents with the same effect as if the Company and such Successor Entity or Successor Entities, jointly and severally, had been named as the Company herein.

e) Calculations. All calculations under this Section 3 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 3, 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 treasury shares, if any) issued and outstanding.

f) Notice to Holder.

i. Adjustment to Exercise Price. Whenever the Exercise Price is adjusted pursuant to any provision of this Section 3, the Company shall promptly deliver to the Holder by facsimile or email a notice setting forth the Exercise Price after such adjustment and any resulting adjustment to the number of Warrant Shares and setting forth a brief statement of the facts requiring such adjustment.

ii. Notice to Allow Exercise by Holder. If while the Warrant is outstanding (A) the Company shall declare a dividend (or any other distribution in whatever form) on the Common Stock, (B) the Company shall declare a special nonrecurring cash dividend on or a redemption of the Common Stock, (C) the Company shall authorize the granting to all holders of the Common Stock 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 Company shall be required in connection with any reclassification of the Common Stock, any consolidation or merger to which the Company is a party, any sale or transfer of all or substantially all of the assets of the Company, or any compulsory share exchange whereby the Common Stock is converted into other securities, cash or property, or (E) the Company shall authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of the Company, then, in each case, the Company shall cause to be delivered by facsimile or email to the Holder at its last facsimile number or email address as it shall appear upon the Warrant Register of the Company, at least 10 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. To the extent that any notice provided in this Warrant constitutes, or contains, material, non-public information regarding the Company or any of the Subsidiaries, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K. The Holder shall remain entitled to exercise this Warrant during the period commencing on the date of such notice to the effective date of the event triggering such notice except as may otherwise be expressly set forth herein.

(g) Voluntary Adjustment By Company. The Company may at any time during the term of this Warrant, with the prior written consent of the Holder, reduce the then current Exercise Price to any amount and for any period of time deemed appropriate by the Board of Directors of the Company unless such reduction would result in the Company violating any rules of its principal trading market.

Section 4. Transfer of Warrant.

a) Transferability. Subject to compliance with any applicable securities laws and the conditions set forth in Section 4(d) hereof and to the provisions of Section 4.1 of the Purchase Agreement, this Warrant and all rights hereunder (including, without limitation, any registration rights) are transferable, in whole or in part, upon surrender of this Warrant at the principal office of the Company or its designated agent, together with a written assignment of this Warrant substantially in the form attached hereto duly executed by the Holder or its agent or attorney and funds sufficient to pay any transfer taxes payable upon the making of such transfer. Upon such surrender and, if required, such payment, the Company shall execute and deliver a new Warrant or Warrants in the name of the assignee or assignees, as applicable, and in the denomination or denominations specified in such instrument of assignment, and shall issue to the assignor a new Warrant evidencing the portion of this Warrant not so assigned, and this Warrant shall promptly be cancelled. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company unless the Holder has assigned this Warrant in full, in which case, the Holder shall surrender this Warrant to the Company within three (3) Trading Days of the date on which the Holder delivers an assignment form to the Company assigning this Warrant in full. The Warrant, if properly assigned in accordance herewith, may be exercised by a new holder for the purchase of Warrant Shares without having a new Warrant issued.

b) New Warrants. This Warrant may be divided or combined with other Warrants upon presentation hereof at the aforesaid office of the Company, together with a written notice specifying the names and denominations in which new Warrants are to be issued, signed by the Holder or its agent or attorney. Subject to compliance with Section 4(a), as to any transfer which may be involved in such division or combination, the Company shall execute and deliver a new Warrant or Warrants in exchange for the Warrant or Warrants to be divided or combined in accordance with such notice. All Warrants issued on transfers or exchanges shall be dated the initial issuance date of this Warrant and shall be identical with this Warrant except as to the number of Warrant Shares issuable pursuant thereto.

c) Warrant Register. The Company shall register this Warrant, upon records to be maintained by the Company for that purpose (the "Warrant Register"), in the name of the record Holder hereof from time to time. The Company may deem and treat the registered Holder of this Warrant as the absolute owner hereof for the purpose of any exercise hereof or any distribution to the Holder, and for all other purposes, absent actual notice to the contrary.

d) Transfer Restrictions. If, at the time of the surrender of this Warrant in connection with any transfer of this Warrant, the transfer of this Warrant shall not be either (i) registered pursuant to an effective registration statement under the Securities Act or under applicable state securities or blue sky laws or (ii) eligible for resale without volume or manner of sale restrictions or current public information requirements pursuant to Rule 144, the Company may require, as a condition of allowing such transfer, that the Holder or transferee of this Warrant, as the case may be, comply with the provisions of Section 5.7 of the Purchase Agreement.

e) Representation by the Holder. The Holder, by the acceptance hereof, represents and warrants that it is acquiring this Warrant and, upon any exercise hereof, will acquire the Warrant Shares issuable upon such exercise, for its own account and not with a view to or for distributing or reselling such Warrant Shares or any part thereof in violation of the Securities Act or any applicable state securities law, except pursuant to sales registered or exempted under the Securities Act.

Section 5. Miscellaneous.

a) No Rights as Stockholder Until Exercise. This Warrant does not entitle the Holder to any voting rights, dividends or other rights as a stockholder of the Company prior to the exercise hereof as set forth in Section 2(d)(i), except as expressly set forth in Section 3.

b) Loss, Theft, Destruction or Mutilation of Warrant. The Company covenants that upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of this Warrant or any stock certificate relating to the Warrant Shares, and in case of loss, theft or destruction, of indemnity or security reasonably satisfactory to it (which, in the case of the Warrant, shall not include the posting of any bond), and upon surrender and cancellation of such Warrant or stock certificate, if mutilated, the Company will make and deliver a new Warrant or stock certificate of like tenor and dated as of such cancellation, in lieu of such Warrant or stock certificate.

c) Saturdays, Sundays, Holidays, etc. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall not be a Business Day, then, such action may be taken or such right may be exercised on the next succeeding Business Day.

d) Authorized Shares.

The Company covenants that, during the period the Warrant is outstanding, it will reserve from its authorized and unissued Common Stock a sufficient number of shares to provide for the issuance of the Warrant Shares upon the exercise of any purchase rights under this Warrant. The Company further covenants that its issuance of this Warrant shall constitute full authority to its officers who are charged with the duty of issuing the necessary Warrant Shares upon the exercise of the purchase rights under this Warrant. The Company will take all such reasonable action as may be necessary to assure that such Warrant Shares may be issued as provided herein without violation of any applicable law or regulation, or of any requirements of the Trading Market upon which the Common Stock may be listed. The Company covenants that all Warrant Shares which may be issued upon the exercise of the purchase rights represented by this Warrant will, upon exercise of the purchase rights represented by this Warrant and payment for such Warrant Shares in accordance herewith, be duly authorized, validly issued, fully paid and nonassessable and free from all taxes, liens and charges created by the Company in respect of the issue thereof (other than taxes in respect of any transfer occurring contemporaneously with such issue).

Except and to the extent as waived or consented to by the Holder, the Company shall not by any action, including, without limitation, amending its certificate of incorporation or through any reorganization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such actions as may be necessary or appropriate to protect the rights of Holder as set forth in this Warrant against impairment. Without limiting the generality of the foregoing, the Company will (i) not increase the par value of any Warrant Shares above the amount payable therefor upon such exercise immediately prior to such increase in par value, (ii) take all such action as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable Warrant Shares upon the exercise of this Warrant and (iii) use commercially reasonable efforts to obtain all such authorizations, exemptions or consents from any public regulatory body having jurisdiction thereof, as may be, necessary to enable the Company to perform its obligations under this Warrant.

Before taking any action which would result in an adjustment in the number of Warrant Shares for which this Warrant is exercisable or in the Exercise Price, the Company shall obtain all such authorizations or exemptions thereof, or consents thereto, as may be necessary from any public regulatory body or bodies having jurisdiction thereof.

e) Jurisdiction. All questions concerning the construction, validity, enforcement and interpretation of this Warrant shall be determined in accordance with the provisions of the Purchase Agreement.

f) Restrictions. The Holder acknowledges that the Warrant Shares acquired upon the exercise of this Warrant, if not registered, and the Holder does not utilize cashless exercise, will have restrictions upon resale imposed by state and federal securities laws.

g) Nonwaiver and Expenses. No course of dealing or any delay or failure to exercise any right hereunder on the part of Holder shall operate as a waiver of such right or otherwise prejudice the Holder's rights, powers or remedies. Without limiting any other provision of this Warrant or the Purchase Agreement, if the Company willfully and knowingly fails to comply with any provision of this Warrant, which results in any material damages to the Holder, the Company shall pay to the Holder such amounts as shall be sufficient to cover any costs and expenses including, but not limited to, reasonable attorneys' fees, including those of appellate proceedings, incurred by the Holder in collecting any amounts due pursuant hereto or in otherwise enforcing any of its rights, powers or remedies hereunder.

h) Notices. Any notice, request or other document required or permitted to be given or delivered to the Holder by the Company shall be delivered in accordance with the notice provisions of the Purchase Agreement.

i) Limitation of Liability. No provision hereof, in the absence of any affirmative action by the Holder to exercise this Warrant to purchase Warrant Shares, and no enumeration herein of the rights or privileges of the Holder, shall give rise to any liability of the Holder for the purchase price of any Common Stock or as a stockholder of the Company, whether such liability is asserted by the Company or by creditors of the Company.

j) Remedies. The Holder, in addition to being entitled to exercise all rights granted by law, including recovery of damages, will be entitled to specific performance of its rights under this Warrant. The Company agrees that monetary damages would not be adequate compensation for any loss incurred by reason of a breach by it of the provisions of this Warrant and hereby agrees to waive and not to assert the defense in any action for specific performance that a remedy at law would be adequate.

k) Successors and Assigns. Subject to applicable securities laws, this Warrant and the rights and obligations evidenced hereby shall inure to the benefit of and be binding upon the successors and permitted assigns of the Company and the successors and permitted assigns of Holder. The provisions of this Warrant are intended to be for the benefit of any Holder from time to time of this Warrant and shall be enforceable by the Holder or holder of Warrant Shares.

l) Amendment. This Warrant may be modified or amended or the provisions hereof waived with the written consent of the Company and the Holder.

m) Severability. Wherever possible, each provision of this Warrant shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Warrant shall be prohibited by or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provisions or the remaining provisions of this Warrant.

n) Headings. The headings used in this Warrant are for the convenience of reference only and shall not, for any purpose, be deemed a part of this Warrant.

(Signature Page Follows)

IN WITNESS WHEREOF, the Company has caused this Warrant to be executed by its officer thereunto duly authorized as of the date first above indicated.

BIO-PATH HOLDINGS, INC.

By: _____
Name:
Title:

NOTICE OF EXERCISE

TO: BIO-PATH HOLDINGS, INC.

(1) The undersigned hereby elects to purchase _____ Warrant Shares of the Company pursuant to the terms of the attached Warrant (only if exercised in full), and tenders herewith payment of the exercise price in full, together with all applicable transfer taxes, if any.

(2) Payment shall take the form of (check applicable box):

in lawful money of the United States; or

if permitted the cancellation of such number of Warrant Shares as is necessary, in accordance with the formula set forth in subsection 2(c), to exercise this Warrant with respect to the maximum number of Warrant Shares purchasable pursuant to the cashless exercise procedure set forth in subsection 2(c). If this box is checked, provide the following information used by the Holder to calculate the Warrant Shares to be issued:

VWAP: _____

Bid Price: _____

(3) Please issue said Warrant Shares in the name of the undersigned or in such other name as is specified below:

The Warrant Shares shall be delivered to the following DWAC Account Number:

(4) The undersigned hereby represents that it is an "accredited investor" as defined in Regulation D promulgated under the Securities Act of 1933, as amended.

[SIGNATURE OF HOLDER]

Name of Investing Entity: _____

Signature of Authorized Signatory of Investing Entity: _____

Name of Authorized Signatory: _____

Title of Authorized Signatory: _____

Date: _____

ASSIGNMENT FORM

(To assign the foregoing Warrant, execute this form and supply required information. Do not use this form to purchase shares.)

FOR VALUE RECEIVED, the foregoing Warrant and all rights evidenced thereby are hereby assigned to

Name: _____
(Please Print)

Address: _____
(Please Print)

Phone Number: _____

Email Address: _____

Dated: _____, _____

Holder's Signature: _____

Holder's Address: _____



Austin | Charlotte | Dallas | Fort Worth | Houston | New York | San Antonio | The Woodlands

November 9, 2022

Bio-Path Holdings, Inc.
4710 Bellaire Boulevard, Suite 210
Bellaire, Texas 77401

Dear Ladies and Gentlemen:

We have acted as legal counsel to Bio-Path Holdings, Inc., a Delaware corporation (the "Company"), in connection with the registered direct offering and sale by the Company of 800,000 shares (the "Shares") of the Company's common stock, par value \$0.001 per share ("Common Stock"), covered by the registration statement on Form S-3 (File No. 333-265282) filed by the Company with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Securities Act") (together with the base prospectus contained therein and the prospectus supplement, dated as of November 6, 2022, filed pursuant to Rule 424(b) under the Securities Act in connection with such offering (the "Prospectus Supplement"), the "Registration Statement"). The Shares are being offered and sold pursuant to that certain Securities Purchase Agreement, dated as of November 6, 2022 (the "Purchase Agreement"), by and among the Company and the purchasers identified on the signature pages thereto and in the manner contemplated by the Prospectus Supplement.

In connection with this opinion, we have examined originals or copies, certified or otherwise identified to our satisfaction, of (i) the Registration Statement, including the Prospectus Supplement, (ii) a specimen certificate representing the Common Stock, (iii) the Purchase Agreement, (iv) the Certificate of Incorporation of the Company, as currently in effect, (v) the First Amended and Restated Bylaws of the Company, as currently in effect, and (vi) certain resolutions adopted by the Board of Directors of the Company and committees thereof with respect to the Purchase Agreement and the issuance of the Shares. We have also examined originals or copies, certified or otherwise identified to our satisfaction, of such records of the Company and such agreements, certificates of public officials, certificates of officers or other representatives of the Company and others, and such other documents, certificates and records, as we have deemed necessary or appropriate as a basis for the opinion set forth herein.

In our examination, we have assumed and have not verified (i) the legal capacity of all natural persons, (ii) the genuineness of all signatures (other than persons signing on behalf of the Company), (iii) the authenticity of all documents submitted to us as originals, (iv) the conformity with the originals of all documents supplied to us as copies, (v) the accuracy and completeness of all corporate records and documents made available to us by the Company and (vi) that the foregoing documents, in the form submitted to us for our review, have not been altered or amended in any respect material to our opinion stated herein. We have relied as to factual matters upon certificates from officers of the Company and certificates and other documents from public officials and government agencies and departments and we have assumed the accuracy and authenticity of such certificates and documents.

Based on the foregoing, and subject to the assumptions, qualifications and limitations set forth herein, as of the date hereof, we are of the opinion that the Shares have been duly authorized for issuance, and when issued and delivered by the Company and paid for in the manner contemplated by the Prospectus Supplement and pursuant to the terms of the Purchase Agreement, the Shares will be validly issued, fully paid and non-assessable.

For purposes of our opinion in the foregoing paragraph, we express no opinion as to the law of any jurisdiction other than the General Corporation Law of the State of Delaware (including the statutory provisions, all applicable provisions of the Delaware Constitution and reported judicial decisions interpreting the foregoing). The opinion expressed herein is given as of this date, and we do not undertake to supplement this opinion with respect to any events or changes occurring subsequent to the date hereof.

We hereby consent to the filing of this opinion as an exhibit to the Current Report on Form 8-K to be filed with the Commission in connection with the offering and to the use of our name under the caption "Legal Matters" in the Prospectus Supplement. In giving this consent, we do not thereby admit that we are included in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission promulgated thereunder.

Very truly yours,

/s/ Winstead PC
Winstead PC

SECURITIES PURCHASE AGREEMENT

This Securities Purchase Agreement (this “Agreement”) is dated as of November 6, 2022, between Bio-Path Holdings, Inc. a Delaware corporation (the “Company”), and each purchaser identified on the signature pages hereto (each, including its successors and assigns, a “Purchaser” and collectively the “Purchasers”).

WHEREAS, subject to the terms and conditions set forth in this Agreement and pursuant to (i) an effective registration statement under the Securities Act (as defined below) as to the Shares and the Pre-Funded Warrants and (ii) an exemption from the registration requirements of Section 5 of the Securities Act contained in Section 4(a)(2) thereof and/or Regulation D thereunder as to the Common Warrants, the Company desires to issue and sell to each Purchaser, and each Purchaser, severally and not jointly, desires to purchase from the Company, securities of the Company as more fully described in this Agreement.

NOW, THEREFORE, IN CONSIDERATION of the mutual covenants contained in this Agreement, and for other good and valuable consideration the receipt and adequacy of which are hereby acknowledged, the Company and each Purchaser agree as follows:

ARTICLE I.
DEFINITIONS

1.1 Definitions. In addition to the terms defined elsewhere in this Agreement, for all purposes of this Agreement, the following terms have the meanings set forth in this Section 1.1:

“Acquiring Person” shall have the meaning ascribed to such term in Section 4.4.

“Action” shall have the meaning ascribed to such term in Section 3.1(j).

“Affiliate” means any Person that, directly or indirectly through one or more intermediaries, controls or is controlled by or is under common control with a Person as such terms are used in and construed under Rule 405 under the Securities Act.

“Board of Directors” means the board of directors of the Company.

“Business Day” means any day other than Saturday, Sunday or other day on which commercial banks in The City of New York are authorized or required by law to remain closed; provided, however, for clarification, commercial banks shall not be deemed to be authorized or required by law to remain closed due to “stay at home”, “shelter-in-place”, “non-essential employee” or any other similar orders or restrictions or the closure of any physical branch locations at the direction of any governmental authority so long as the electronic funds transfer systems (including for wire transfers) of commercial banks in The City of New York generally are open for use by customers on such day.

“Closing” means the closing of the purchase and sale of the Securities pursuant to Section 2.1.

“Closing Date” means the Trading Day on which all of the Transaction Documents have been executed and delivered by the applicable parties thereto, and all conditions precedent to (i) the Purchasers’ obligations to pay the Subscription Amount and (ii) the Company’s obligations to deliver the Securities, in each case, have been satisfied or waived, but in no event later than the second (2nd) Trading Day following the date hereof.

“Commission” means the United States Securities and Exchange Commission.

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

“Common Stock Equivalents” means any securities of the Company or the Subsidiaries which would entitle the holder thereof to acquire at any time Common Stock, including, without limitation, any debt, preferred stock, right, option, warrant or other instrument that is at any time convertible into or exercisable or exchangeable for, or otherwise entitles the holder thereof to receive, Common Stock.

“Common Warrants” means, collectively, the Common Stock purchase warrants delivered to the Purchasers at the Closing in accordance with Section 2.2(a) hereof, which Common Warrants shall be exercisable commencing six (6) months following the issuance and have a term equal to five and one-half (5.5) years, in the form of Exhibit B attached hereto.

“Common Warrant Shares” means the shares of Common Stock issuable upon exercise of the Common Warrants.

“Company Counsel” means Winstead PC, with offices located at 600 Travis Street, Suite 5200, Houston, TX 77002.

“Disclosure Schedules” means the Disclosure Schedules of the Company delivered concurrently herewith.

“Disclosure Time” means, (i) if this Agreement is signed on a day that is not a Trading Day or after 9:00 a.m. (New York City time) and before midnight (New York City time) on any Trading Day, 9:01 a.m. (New York City time) on the Trading Day immediately following the date hereof, unless otherwise instructed as to an earlier time by the Placement Agent, and (ii) if this Agreement is signed between midnight (New York City time) and 9:00 a.m. (New York City time) on any Trading Day, no later than 9:01 a.m. (New York City time) on the date hereof, unless otherwise instructed as to an earlier time by the Placement Agent.

“Evaluation Date” shall have the meaning ascribed to such term in Section 3.1(s).

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

“Exempt Issuance” means the issuance of (a) shares of Common Stock or options or other equity awards to employees, officers or directors of the Company pursuant to any stock or option plan duly adopted for such purpose, by a majority of the non-employee members of the Board of Directors or a majority of the members of a committee of non-employee directors established for such purpose for services rendered to the Company, (b) securities upon the exercise or exchange of or conversion of any Securities issued hereunder and/or other securities upon the exercise or exchange of or conversion of securities exercisable or exchangeable for or convertible into shares of Common Stock issued and outstanding on the date of this Agreement, provided that such securities have not been amended since the date of this Agreement to increase the number of such securities or to decrease the exercise price, exchange price or conversion price of such securities (other than in connection with stock splits or combinations) or to extend the term of such securities, and (c) securities issued pursuant to acquisitions or strategic transactions approved by a majority of the disinterested directors of the Company, provided that such securities are issued as “restricted securities” (as defined in Rule 144) and carry no registration rights that require or permit the filing of any registration statement in connection therewith during the prohibition period in Section 4.11(a) herein, and provided that any such issuance shall only be to a Person (or to the equityholders of a Person) which is, itself or through its subsidiaries, an operating company or an owner of an asset in a business synergistic with the business of the Company and shall provide to the Company additional benefits in addition to the investment of funds, but shall not include a transaction in which the Company is issuing securities primarily for the purpose of raising capital or to an entity whose primary business is investing in securities.

“FCPA” means the Foreign Corrupt Practices Act of 1977, as amended.

“FDA” shall have the meaning ascribed to such term in Section 3.1(hh).

“FDCA” shall have the meaning ascribed to such term in Section 3.1(hh).

“GAAP” shall have the meaning ascribed to such term in Section 3.1(h).

“Indebtedness” shall have the meaning ascribed to such term in Section 3.1(aa).

“Intellectual Property Rights” shall have the meaning ascribed to such term in Section 3.1(p).

“Liens” means a lien, charge, pledge, security interest, encumbrance, right of first refusal, preemptive right or other restriction.

“Lock-Up Agreements” means the Lock-Up Agreements, each dated as of the date hereof, by and between the Company and each of the directors and officers of the Company, in the form of Exhibit A attached hereto.

“Material Adverse Effect” shall have the meaning assigned to such term in Section 3.1(b).

“Material Permits” shall have the meaning ascribed to such term in Section 3.1(n).

“PC” means Pryor Cashman LLP, with offices located at 7 Times Square, New York, New York 10036.

“Per Share Purchase Price” equals \$2.50, subject to adjustment for reverse and forward stock splits, stock dividends, stock combinations and other similar transactions of the Common Stock that occur after the date of this Agreement, provided that the purchase price per Pre-Funded Warrant shall be the Per Share Purchase Price minus \$0.001.

“Person” means an 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.

“Pharmaceutical Product” shall have the meaning ascribed to such term in Section 3.1(hh).

“Placement Agent” means Roth Capital Partners, LLC.

“Pre-Funded Warrant” means, collectively, the pre-funded Common Stock purchase warrants delivered to the Purchasers at the Closing in accordance with Section 2.2(a) hereof, which Pre-Funded Warrants shall be exercisable immediately and shall expire when exercised in full, in the form of Exhibit C attached hereto.

“Pre-Funded Warrant Shares” means the shares of Common Stock issuable upon exercise of the Pre-Funded Warrants.

“Proceeding” means an action, claim, suit, investigation or proceeding (including, without limitation, an informal investigation or partial proceeding, such as a deposition), whether commenced or threatened.

“Prospectus” means the final prospectus filed for the Registration Statement.

“Prospectus Supplement” means the supplement to the Prospectus complying with Rule 424(b) of the Securities Act that is filed with the Commission and delivered by the Company to each Purchaser at the Closing.

“Purchaser Party” shall have the meaning ascribed to such term in Section 4.7.

“Registration Statement” means the effective registration statement with Commission file No. 333-265282 which registers the sale of the Shares to the Purchasers.

“Required Approvals” shall have the meaning ascribed to such term in Section 3.1(e).

“Rule 144” means Rule 144 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended or interpreted from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same purpose and effect as such Rule.

“Rule 424” means Rule 424 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended or interpreted from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same purpose and effect as such Rule.

“SEC Reports” shall have the meaning ascribed to such term in Section 3.1(h).

“Securities” means the Shares, the Warrants and the Warrant Shares.

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

“Shares” means the shares of Common Stock issued or issuable to each Purchaser pursuant to this Agreement.

“Short Sales” means all “short sales” as defined in Rule 200 of Regulation SHO under the Exchange Act (but shall not be deemed to include locating and/or borrowing shares of Common Stock).

“Subscription Amount” means, as to each Purchaser, the aggregate amount to be paid for Shares and Warrants purchased hereunder as specified below such Purchaser’s name on the signature page of this Agreement and next to the heading “Subscription Amount,” in United States dollars and in immediately available funds (minus, if applicable, a Purchaser’s aggregate exercise price of the Pre-Funded Warrants, which amounts shall be paid as and when such Pre-Funded Warrants are exercised for cash).

“Subsidiary” means any subsidiary of the Company as set forth on Schedule 3.1(a), and shall, where applicable, also include any direct or indirect subsidiary of the Company formed or acquired after the date hereof.

“Trading Day” means a day on which the principal Trading Market is open for trading.

“Trading Market” means any of the following markets or exchanges on which the Common Stock is listed or quoted for trading on the date in question: the NYSE American, the Nasdaq Capital Market, the Nasdaq Global Market, the Nasdaq Global Select Market, the New York Stock Exchange, the OTCQB or OTCQX (or any successors to any of the foregoing).

“Transaction Documents” means this Agreement, the Lock-Up Agreements, the Warrants, all exhibits and schedules thereto and hereto and any other documents or agreements executed in connection with the transactions contemplated hereunder.

“Transfer Agent” means American Stock Transfer & Trust Company, LLC, the current transfer agent of the Company, with a mailing address of 6201 15th Avenue, Brooklyn, NY 11219 and a facsimile number of (972) 582-1890, and any successor transfer agent of the Company.

“Variable Rate Transaction” shall have the meaning ascribed to such term in Section 4.11(b).

“Warrants” means, collectively, the Common Warrants and the Pre-Funded Warrants.

“Warrant Shares” means, collectively, the Common Warrant Shares and the Pre-Funded Warrant Shares.

ARTICLE II. PURCHASE AND SALE

2.1 Closing. On the Closing Date, upon the terms and subject to the conditions set forth herein, the Company agrees to sell, and the Purchasers, severally and not jointly, agree to purchase, up to an aggregate of \$2,000,000 of Shares and Common Warrants; provided, however, that, to the extent that a Purchaser determines, in its sole discretion, that such Purchaser (together with such Purchaser’s Affiliates, and any Person acting as a group together with such Purchaser or any of such Purchaser’s Affiliates) would beneficially own in excess of the Beneficial Ownership Maximum (defined below), or as such Purchaser may otherwise choose, in lieu of purchasing Shares such Purchaser may elect to purchase Pre-Funded Warrants in lieu of Shares in such manner to result in the same aggregate purchase price being paid by such Purchaser to the Company. Each Purchaser’s Subscription Amount as set forth on the signature page hereto executed by such Purchaser shall be made available for “Delivery Versus Payment” settlement with the Company or its designee. The Company shall deliver to each Purchaser its respective Shares and Common Warrants and/or Pre-Funded Warrants (as applicable to such Purchaser) and Common Warrants as determined pursuant to Section 2.2(a), and the Company and each Purchaser shall deliver the other items set forth in Section 2.2 deliverable at the Closing. Upon satisfaction of the covenants and conditions set forth in Sections 2.2 and 2.3, the Closing shall occur at the offices of PC or such other location as the parties shall mutually agree. Unless otherwise directed by the Placement Agent, settlement of the Shares shall occur via “Delivery Versus Payment” (“DVP”) (i.e., on the Closing Date, the Company shall issue the Shares registered in the Purchasers’ names and addresses and released by the Transfer Agent directly to the account(s) at the Placement Agent identified by each Purchaser; upon receipt of such Shares, the Placement Agent shall promptly electronically deliver such Shares to the applicable Purchaser, and payment therefor shall be made by the Placement Agent (or its clearing firm) by wire transfer to the Company). Notwithstanding anything to the contrary herein and the Purchaser’s Subscription Amount set forth on the signature pages attached hereto, the number of Shares purchased by a Purchaser (and its Affiliates) hereunder shall not, when aggregated with all other shares of Common Stock owned by such Purchaser (and its Affiliates) at such time, result in such Purchaser beneficially owning (as determined in accordance with Section 13(d) of the Exchange Act) in excess of 9.9% of the then issued and outstanding Common Stock outstanding at the Closing (the “Beneficial Ownership Maximum”), and such Purchaser’s Subscription Amount, to the extent it would otherwise exceed the Beneficial Ownership Maximum immediately prior to the Closing, shall be conditioned upon the issuance of Shares at the Closing to the other Purchasers signatory hereto. To the extent that a Purchaser’s beneficial ownership of the Shares would otherwise be deemed to exceed the Beneficial Ownership Maximum, such Purchasers’ Subscription Amount shall automatically be reduced as necessary in order to comply with this paragraph. Notwithstanding the foregoing, with respect to any Notice(s) of Exercise (as defined in the Pre-Funded Warrants) delivered on or prior to 12:00 p.m. (New York City time) on the Closing Date, which may be delivered at any time after the time of execution of the this Agreement, the Company agrees to deliver the Warrant Shares subject to such notice(s) by 4:00 p.m. (New York City time) on the Closing Date and the Closing Date shall be the Warrant Share Delivery Date (as defined in the Pre-Funded Warrants) for purposes hereunder. Notwithstanding anything herein to the contrary, if at any time on or after the time of execution of this Agreement by the Company and an applicable Purchaser, through, and including the time immediately prior to the Closing (the “Pre-Settlement Period”), if such Purchaser sells to any Person all, or any portion, of any Common Stock to be issued hereunder to such Purchaser at the Closing (collectively, the “Pre-Settlement Shares”), such Purchaser shall, automatically hereunder (without any additional required actions by such Purchaser or the Company), be deemed to be unconditionally bound to purchase, and the Company shall be deemed unconditionally bound to sell, such Pre-Settlement Shares to such Purchaser at the Closing; provided, that the Company shall not be required to deliver any Pre-Settlement Shares to such Purchaser prior to the Company’s receipt of the Subscription Amount for such Pre-Settlement Shares hereunder; provided, further, that the Company hereby acknowledges and agrees that the forgoing shall not constitute a representation or covenant by such Purchaser as to whether or not such Purchaser will elect to sell any Pre-Settlement Shares during the Pre-Settlement Period. The decision to sell any shares of Common Stock will be made in the sole discretion of such Purchaser from time to time, including during the Pre-Settlement Period.

2.2 Deliveries.

(a) On or prior to the Closing Date (except as indicated below), the Company shall deliver or cause to be delivered to each Purchaser the following:

- (i) this Agreement duly executed by the Company;
- (ii) a legal opinion of Company Counsel, in a form acceptable to the Placement Agent and each Purchaser;
- (iii) the Company shall have provided each Purchaser with the Company's wire instructions, on Company letterhead and executed by the Chief Executive Officer or Chief Financial Officer;
- (iv) a copy of the irrevocable instructions to the Transfer Agent instructing the Transfer Agent to deliver on an expedited basis via The Depository Trust Company Deposit or Withdrawal at Custodian system ("DWAC") Shares equal to such Purchaser's Subscription Amount divided by the Per Share Purchase Price, registered in the name of such Purchaser;
- (v) a Common Warrant registered in the name of such Purchaser to purchase up to a number of shares of Common Stock equal to 100% of such Purchaser's Shares plus Pre-Funded Warrant Shares initially issuable upon exercise of the Pre-Funded Warrants, if applicable, with an exercise price equal to \$2.85, subject to adjustment therein;

(vi) for each Purchaser of Pre-Funded Warrants pursuant to Section 2.1, a Pre-Funded Warrant registered in the name of such Purchaser to purchase up to a number of shares of Common Stock equal to the portion of such Purchaser's Subscription Amount applicable to Pre-Funded Warrant divided by the Per Share Purchase Price minus \$0.001, with an exercise price equal to \$0.001, subject to adjustment therein;

(vii) the duly executed Lock-Up Agreements; and

(viii) the Prospectus and Prospectus Supplement (which may be delivered in accordance with Rule 172 under the Securities Act).

(b) On or prior to the Closing Date, each Purchaser shall deliver or cause to be delivered to the Company the following:

(i) this Agreement duly executed by such Purchaser; and

(ii) such Purchaser's Subscription Amount, which shall be made available for "Delivery Versus Payment" settlement with the Company or its designee.

2.3 Closing Conditions.

(a) The obligations of the Company hereunder in connection with the Closing are subject to the following conditions being met:

(i) the accuracy in all material respects (or, to the extent representations or warranties are qualified by materiality or Material Adverse Effect, in all respects) on the Closing Date of the representations and warranties of the Purchasers contained herein (unless as of a specific date therein in which case they shall be accurate as of such date);

(ii) all obligations, covenants and agreements of each Purchaser required to be performed at or prior to the Closing Date shall have been performed; and

(iii) the delivery by each Purchaser of the items set forth in Section 2.2(b) of this Agreement.

(b) The respective obligations of the Purchasers hereunder in connection with the Closing are subject to the following conditions being met:

(i) the accuracy in all material respects (or, to the extent representations or warranties are qualified by materiality or Material Adverse Effect, in all respects) when made and on the Closing Date of the representations and warranties of the Company contained herein (unless as of a specific date therein in which case they shall be accurate as of such date);

- (ii) all obligations, covenants and agreements of the Company required to be performed at or prior to the Closing Date shall have been performed;
- (iii) the delivery by the Company of the items set forth in Section 2.2(a) of this Agreement;
- (iv) there shall have been no Material Adverse Effect with respect to the Company since the date hereof; and
- (v) from the date hereof to the Closing Date, trading in the Common Stock shall not have been suspended by the Commission or the Company's principal Trading Market, and, at any time prior to the Closing Date, trading in securities generally as reported by Bloomberg L.P. shall not have been suspended or limited, or minimum prices shall not have been established on securities whose trades are reported by such service, or on any Trading Market, nor shall a banking moratorium have been declared either by the United States or New York State authorities nor shall there have occurred any material outbreak or escalation of hostilities or other national or international calamity of such magnitude in its effect on, or any material adverse change in, any financial market which, in each case, in the reasonable judgment of such Purchaser, makes it impracticable or inadvisable to purchase the Securities at the Closing.

ARTICLE III.
REPRESENTATIONS AND WARRANTIES

3.1 Representations and Warranties of the Company. Except as set forth in the Disclosure Schedules, which Disclosure Schedules shall be deemed a part hereof and shall qualify any representation or otherwise made herein to the extent of the disclosure contained in the corresponding section of the Disclosure Schedules, the Company hereby makes the following representations and warranties to each Purchaser:

(a) Subsidiaries. All of the direct and indirect subsidiaries of the Company are set forth on Schedule 3.1(a). The Company owns, directly or indirectly, all of the capital stock or other equity interests of each Subsidiary free and clear of any Liens, and all of the issued and outstanding shares of capital stock of each Subsidiary are validly issued and are fully paid, non-assessable and free of preemptive and similar rights to subscribe for or purchase securities. If the Company has no subsidiaries, all other references to the Subsidiaries or any of them in the Transaction Documents shall be disregarded.

(b) Organization and Qualification. The Company and each of the Subsidiaries is an entity duly incorporated or otherwise organized, validly existing and in good standing under the laws of the jurisdiction of its incorporation or organization, with the requisite power and authority to own and use its properties and assets and to carry on its business as currently conducted. Neither the Company nor any Subsidiary is in violation nor default of any of the provisions of its respective certificate or articles of incorporation, bylaws or other organizational or charter documents. Each of the Company and the Subsidiaries is duly qualified to conduct business and is in good standing as a foreign corporation or other entity in each jurisdiction in which the nature of the business conducted or property owned by it makes such qualification necessary, except where the failure to be so qualified or in good standing, as the case may be, could not have or reasonably be expected to result in: (i) a material adverse effect on the legality, validity or enforceability of any Transaction Document, (ii) a material adverse effect on the results of operations, assets, business, prospects or condition (financial or otherwise) of the Company and the Subsidiaries, taken as a whole, or (iii) a material adverse effect on the Company's ability to perform in any material respect on a timely basis its obligations under any Transaction Document (any of (i), (ii) or (iii), a "Material Adverse Effect") and no Proceeding has been instituted in any such jurisdiction revoking, limiting or curtailing or seeking to revoke, limit or curtail such power and authority or qualification.

(c) Authorization; Enforcement. The Company has the requisite corporate power and authority to enter into and to consummate the transactions contemplated by this Agreement and each of the other Transaction Documents and otherwise to carry out its obligations hereunder and thereunder. The execution and delivery of this Agreement and each of the other Transaction Documents by the Company and the consummation by it of the transactions contemplated hereby and thereby have been duly authorized by all necessary action on the part of the Company and no further action is required by the Company, the Board of Directors or the Company's stockholders in connection herewith or therewith other than in connection with the Required Approvals. This Agreement and each other Transaction Document to which it is a party has been (or upon delivery will have been) duly executed by the Company and, when delivered in accordance with the terms hereof and thereof, will (assuming due authorization, execution and delivery by the other parties hereto) constitute the valid and binding obligation of the Company enforceable against the Company in accordance with its terms, except (i) as limited by general equitable principles and applicable bankruptcy, insolvency, reorganization, moratorium and other laws of general application affecting enforcement of creditors' rights generally, (ii) as limited by laws relating to the availability of specific performance, injunctive relief or other equitable remedies and (iii) insofar as indemnification and contribution provisions may be limited by applicable law.

(d) No Conflicts. The execution, delivery and performance by the Company of this Agreement and the other Transaction Documents to which it is a party, the issuance and sale of the Securities and the consummation by it of the transactions contemplated hereby and thereby do not and will not (i) conflict with or violate any provision of the Company's or any Subsidiary's certificate or articles of incorporation, bylaws or other organizational or charter documents, or (ii) conflict with, or constitute a default (or an event that with notice or lapse of time or both would become a default) under, result in the creation of any Lien upon any of the properties or assets of the Company or any Subsidiary, or give to others any rights of termination, amendment, anti-dilution or similar adjustments, acceleration or cancellation (with or without notice, lapse of time or both) of, any agreement, credit facility, debt or other instrument (evidencing a Company or Subsidiary debt or otherwise) or other understanding to which the Company or any Subsidiary is a party or by which any property or asset of the Company or any Subsidiary is bound or affected, or (iii) subject to the Required Approvals, conflict with or result in a violation of any law, rule, regulation, order, judgment, injunction, decree or other restriction of any court or governmental authority to which the Company or a Subsidiary is subject (including federal and state securities laws and regulations), or by which any property or asset of the Company or a Subsidiary is bound or affected; except in the case of each of clauses (ii) and (iii), such as could not have or reasonably be expected to result in a Material Adverse Effect.

(e) Filings, Consents and Approvals. The Company is not required to obtain any consent, waiver, authorization or order of, give any notice to, or make any filing or registration with, any court or other federal, state, local or other governmental authority or other Person in connection with the execution, delivery and performance by the Company of the Transaction Documents, other than: (i) the filings required pursuant to Section 4.4 of this Agreement, (ii) the filing with the Commission of the Prospectus Supplement, (iii) application(s) to each applicable Trading Market for the listing of the Shares and Warrant Shares for trading thereon in the time and manner required thereby and (iv) such filings as are required to be made under applicable state securities laws (collectively, the “Required Approvals”).

(f) Issuance of the Securities; Registration. The Securities are duly authorized and, when issued and paid for in accordance with the applicable Transaction Documents, will be duly and validly issued, fully paid and nonassessable, free and clear of all Liens imposed by the Company. The Warrant Shares, when issued in accordance with the terms of the Warrants, will be validly issued, fully paid and nonassessable, free and clear of all Liens imposed by the Company other than restrictions on transfer provided for in the Transaction Documents. The Company has reserved from its duly authorized capital stock the maximum number of shares of Common Stock issuable pursuant to this Agreement and the Warrants as of the date hereof. The Company has prepared and filed the Registration Statement in conformity with the requirements of the Securities Act, which became effective on June 14, 2022 (the “Effective Date”), including the Prospectus, and such amendments and supplements thereto as may have been required to the date of this Agreement. The Registration Statement is effective under the Securities Act and no stop order preventing or suspending the effectiveness of the Registration Statement or suspending or preventing the use of the Prospectus has been issued by the Commission and no proceedings for that purpose have been instituted or, to the knowledge of the Company, are threatened by the Commission. The Company, if required by the rules and regulations of the Commission, shall file the Prospectus Supplement with the Commission pursuant to Rule 424(b). At the time the Registration Statement and any amendments thereto became effective, at the date of this Agreement and at the Closing Date, the Registration Statement and any amendments thereto conformed and will conform in all material respects to the requirements of the Securities Act and did not and will not contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein not misleading; and the Prospectus and any amendments or supplements thereto, at the time the Prospectus or any amendment or supplement thereto was issued and at the Closing Date, conformed and will conform in all material respects to the requirements of the Securities Act and did not and will not contain an untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading. The Company was at the time of the filing of the Registration Statement eligible to use Form S-3. The Company is eligible to use Form S-3 under the Securities Act and it meets the transaction requirements with respect to the aggregate market value of securities being sold pursuant to this offering and during the twelve (12) months prior to this offering, as set forth in General Instruction I.B.6 of Form S-3.

(g) Capitalization. The capitalization of the Company as of the date hereof is as set forth on Schedule 3.1(g), which Schedule 3.1(g) shall also include the number of shares of Common Stock owned beneficially, and of record, by Affiliates of the Company as of the date hereof. The Company has not issued any capital stock since its most recently filed periodic report under the Exchange Act, other than pursuant to the terms of the At The Market Offering Agreement with H.C. Wainwright & Co., LLC dated as of July 13, 2020, pursuant to the exercise of employee stock options under the Company's stock option plans, the issuance of shares of Common Stock to employees pursuant to the Company's employee stock purchase plans and pursuant to the conversion and/or exercise of Common Stock Equivalents outstanding as of the date of the most recently filed periodic report under the Exchange Act. No Person has any right of first refusal, preemptive right, right of participation, or any similar right to participate in the transactions contemplated by the Transaction Documents. Except as a result of the purchase and sale of the Securities and as set forth on Schedule 3.1(g), there are no outstanding options, warrants, scrip rights to subscribe to, calls or commitments of any character whatsoever relating to, or securities, rights or obligations convertible into or exercisable or exchangeable for, or giving any Person any right to subscribe for or acquire, any shares of Common Stock or the capital stock of any Subsidiary, or contracts, commitments, understandings or arrangements by which the Company or any Subsidiary is or may become bound to issue additional shares of Common Stock or Common Stock Equivalents or capital stock of any Subsidiary. The issuance and sale of the Securities will not obligate the Company or any Subsidiary to issue shares of Common Stock or other securities to any Person (other than the Purchasers). Except as set forth on Schedule 3.1(g), there are no outstanding securities or instruments of the Company or any Subsidiary with any provision that adjusts the exercise, conversion, exchange or reset price of such security or instrument upon an issuance of securities by the Company or any Subsidiary. Except as set forth on Schedule 3.1(g), there are no outstanding securities or instruments of the Company or any Subsidiary that contain any redemption or similar provisions, and there are no contracts, commitments, understandings or arrangements by which the Company or any Subsidiary is or may become bound to redeem a security of the Company or such Subsidiary. The Company does not have any stock appreciation rights or "phantom stock" plans or agreements or any similar plan or agreement. All of the outstanding shares of capital stock of the Company are duly authorized, validly issued, fully paid and nonassessable, have been issued in compliance with all federal and state securities laws, and none of such outstanding shares was issued in violation of any preemptive rights or similar rights to subscribe for or purchase securities. No further approval or authorization of any stockholder, the Board of Directors or others is required for the issuance and sale of the Securities. There are no stockholders agreements, voting agreements or other similar agreements with respect to the Company's capital stock to which the Company is a party or, to the knowledge of the Company, between or among any of the Company's stockholders.

(h) SEC Reports; Financial Statements. The Company has filed all reports, schedules, forms, statements and other documents required to be filed by the Company under the Securities Act and the Exchange Act, including pursuant to Section 13(a) or 15(d) thereof, for the two years preceding the date hereof (or such shorter period as the Company was required by law or regulation to file such material) (the foregoing materials, including the exhibits thereto and documents incorporated by reference therein, together with the Prospectus and the Prospectus Supplement, being collectively referred to herein as the "SEC Reports") on a timely basis or has received a valid extension of such time of filing and has filed any such SEC Reports prior to the expiration of any such extension. As of their respective dates, the SEC Reports complied in all material respects with the requirements of the Securities Act and the Exchange Act, as applicable, and none of the SEC Reports, when filed, contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading. The financial statements of the Company included in the SEC Reports comply in all material respects with applicable accounting requirements and the rules and regulations of the Commission with respect thereto as in effect at the time of filing. Such financial statements have been prepared in accordance with United States generally accepted accounting principles applied on a consistent basis during the periods involved ("GAAP"), except as may be otherwise specified in such financial statements or the notes thereto and except that unaudited financial statements may not contain all footnotes required by GAAP, and fairly present in all material respects the financial position of the Company and its consolidated Subsidiaries as of and for the dates thereof and the results of operations and cash flows for the periods then ended, subject, in the case of unaudited statements, to normal, immaterial, year-end audit adjustments. The Company is not, and has not been for a period of at least one year prior to the date hereof, an issuer identified in Rule 144(i)(1) of the 1933 Act. The Company filed current "Form 10 information" (as defined in Rule 144 (i)(3)) with the SEC reflecting its status as an entity that was no longer an issuer described in Rule 144(i)(1)(i) more than one (1) year ago from the date hereof.

(i) Material Changes; Undisclosed Events, Liabilities or Developments. Since the date of the latest audited financial statements included within the SEC Reports, except as set forth on Schedule 3.1(i), (i) there has been no event, occurrence or development that has had or that could reasonably be expected to result in a Material Adverse Effect, (ii) the Company has not incurred any liabilities (contingent or otherwise) other than (A) trade payables and accrued expenses incurred in the ordinary course of business consistent with past practice and (B) liabilities not required to be reflected in the Company's financial statements pursuant to GAAP or disclosed in filings made with the Commission, (iii) the Company has not altered its method of accounting, (iv) the Company has not declared or made any dividend or distribution of cash or other property to its stockholders or purchased, redeemed or made any agreements to purchase or redeem any shares of its capital stock and (v) the Company has not issued any equity securities to any officer, director or Affiliate, except pursuant to existing Company stock option plans. The Company does not have pending before the Commission any request for confidential treatment of information. Except for the issuance of the Securities contemplated by this Agreement or as set forth on Schedule 3.1(i), no event, liability, fact, circumstance, occurrence or development has occurred or exists or is reasonably expected to occur or exist with respect to the Company or its Subsidiaries or their respective businesses, prospects, properties, operations, assets or financial condition that would be required to be disclosed by the Company under applicable securities laws at the time this representation is made or deemed made that has not been publicly disclosed at least 1 Trading Day prior to the date that this representation is made.

(j) Litigation. Except as set forth on Schedule 3.1(j), there is no action, suit, inquiry, notice of violation, proceeding or investigation pending or, to the knowledge of the Company, threatened against or affecting the Company, any Subsidiary or any of their respective properties before or by any court, arbitrator, governmental or administrative agency or regulatory authority (federal, state, county, local or foreign) (collectively, an “Action”). None of the Actions set forth on Schedule 3.1(j), (i) adversely affects or challenges the legality, validity or enforceability of any of the Transaction Documents or the Securities or (ii) could, if there were an unfavorable decision, have or reasonably be expected to result in a Material Adverse Effect. Neither the Company nor any Subsidiary, nor any director or officer thereof, is or has been the subject of any Action involving a claim of violation of or liability under federal or state securities laws or a claim of breach of fiduciary duty. There has not been, and to the knowledge of the Company, there is not pending or contemplated, any investigation by the Commission involving the Company or any current or former director or officer of the Company. The Commission has not issued any stop order or other order suspending the effectiveness of any registration statement filed by the Company or any Subsidiary under the Exchange Act or the Securities Act.

(k) Labor Relations. No labor dispute exists or, to the knowledge of the Company, is imminent with respect to any of the employees of the Company, which could reasonably be expected to result in a Material Adverse Effect. None of the Company’s or its Subsidiaries’ employees is a member of a union that relates to such employee’s relationship with the Company or such Subsidiary, and neither the Company nor any of its Subsidiaries is a party to a collective bargaining agreement, and the Company and its Subsidiaries believe that their relationships with their employees are good. To the knowledge of the Company, no executive officer of the Company or any Subsidiary, is, or is now expected to be, in violation of any material term of any employment contract, confidentiality, disclosure or proprietary information agreement or non-competition agreement, or any other contract or agreement or any restrictive covenant in favor of any third party, and the continued employment of each such executive officer does not subject the Company or any of its Subsidiaries to any liability with respect to any of the foregoing matters. The Company and its Subsidiaries are in compliance with all U.S. federal, state, local and foreign laws and regulations relating to employment and employment practices, terms and conditions of employment and wages and hours, except where the failure to be in compliance could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

(l) Compliance. Neither the Company nor any Subsidiary: (i) is in default under or in violation of (and no event has occurred that has not been waived that, with notice or lapse of time or both, would result in a default by the Company or any Subsidiary under), nor has the Company or any Subsidiary received notice of a claim that it is in default under or that it is in violation of, any indenture, loan or credit agreement or any other agreement or instrument to which it is a party or by which it or any of its properties is bound (whether or not such default or violation has been waived), (ii) is in violation of any judgment, decree or order of any court, arbitrator or other governmental authority or (iii) is or has been in violation of any statute, rule, ordinance or regulation of any governmental authority, including without limitation all foreign, federal, state and local laws relating to taxes, environmental protection, occupational health and safety, product quality and safety and employment and labor matters, except in each case as could not have or reasonably be expected to result in a Material Adverse Effect.

(m) Environmental Laws. The Company and its Subsidiaries (i) are in compliance with all federal, state, local and foreign laws relating to pollution or protection of human health or the environment (including ambient air, surface water, groundwater, land surface or subsurface strata), including laws relating to emissions, discharges, releases or threatened releases of chemicals, pollutants, contaminants, or toxic or hazardous substances or wastes (collectively, "Hazardous Materials") into the environment, or otherwise relating to the manufacture, processing, distribution, use, treatment, storage, disposal, transport or handling of Hazardous Materials, as well as all authorizations, codes, decrees, demands, or demand letters, injunctions, judgments, licenses, notices or notice letters, orders, permits, plans or regulations, issued, entered, promulgated or approved thereunder ("Environmental Laws"); (ii) have received all permits licenses or other approvals required of them under applicable Environmental Laws to conduct their respective businesses; and (iii) are in compliance with all terms and conditions of any such permit, license or approval where in each clause (i), (ii) and (iii), the failure to so comply could be reasonably expected to have, individually or in the aggregate, a Material Adverse Effect.

(n) Regulatory Permits. The Company and the Subsidiaries possess all certificates, authorizations and permits issued by the appropriate federal, state, local or foreign regulatory authorities necessary to conduct their respective businesses as described in the SEC Reports, except where the failure to possess such permits could not reasonably be expected to result in a Material Adverse Effect ("Material Permits"), and neither the Company nor any Subsidiary has received any notice of proceedings relating to the revocation or modification of any Material Permit.

(o) Title to Assets. The Company and the Subsidiaries have good and marketable title in fee simple to all real property owned by them and good and marketable title in all personal property owned by them that is material to the business of the Company and the Subsidiaries, in each case free and clear of all Liens, except for (i) Liens as do not materially affect the value of such property and do not materially interfere with the use made and proposed to be made of such property by the Company and the Subsidiaries and (ii) Liens for the payment of federal, state or other taxes, for which appropriate reserves have been made therefor in accordance with GAAP and, the payment of which is neither delinquent nor subject to penalties. Any real property and facilities held under lease by the Company and the Subsidiaries are held by them under valid, subsisting and enforceable leases with which the Company and the Subsidiaries are in compliance.

(p) Intellectual Property. The Company and the Subsidiaries have, or have rights to use, all patents, patent applications, trademarks, trademark applications, service marks, trade names, trade secrets, inventions, copyrights, licenses and other intellectual property rights and similar rights necessary or required for use in connection with their respective businesses as described in the SEC Reports and which the failure to so have could have a Material Adverse Effect (collectively, the “Intellectual Property Rights”). None of, and neither the Company nor any Subsidiary has received a notice (written or otherwise) that any of, the Intellectual Property Rights has expired, terminated or been abandoned, or is expected to expire or terminate or be abandoned, within two (2) years from the date of this Agreement. Neither the Company nor any Subsidiary has received, since the date of the latest audited financial statements included within the SEC Reports, a written notice of a claim or otherwise has any knowledge that the Intellectual Property Rights violate or infringe upon the rights of any Person, except as could not have or reasonably be expected to not have a Material Adverse Effect. To the knowledge of the Company, all such Intellectual Property Rights are enforceable and there is no existing infringement by another Person of any of the Intellectual Property Rights. The Company and its Subsidiaries have taken reasonable security measures to protect the secrecy, confidentiality and value of all of their intellectual properties, except where failure to do so could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

(q) Insurance. 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 the Company and the Subsidiaries are engaged, including, but not limited to, directors and officers insurance coverage at least equal to the aggregate Subscription Amount. Neither the Company nor any Subsidiary has any reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business without a significant increase in cost.

(r) Transactions With Affiliates and Employees. Except as set forth on Schedule 3.1(r), none of the officers or directors of the Company or any Subsidiary and, to the knowledge of the Company, none of the employees of the Company or any Subsidiary is presently a party to any transaction with the Company or any Subsidiary (other than for services as employees, officers and directors), including any contract, agreement or other arrangement providing for the furnishing of services to or by, providing for rental of real or personal property to or from, providing for the borrowing of money from or lending of money to or otherwise requiring payments to or from any officer, director or such employee or, to the knowledge of the Company, any entity in which any officer, director, or any such employee has a substantial interest or is an officer, director, trustee, stockholder, member or partner, in each case in excess of \$120,000 other than for (i) payment of salary or consulting fees for services rendered, (ii) reimbursement for expenses incurred on behalf of the Company and (iii) other employee benefits, including stock option agreements under any stock option plan of the Company.

(s) Sarbanes-Oxley: Internal Accounting Controls. The Company and the Subsidiaries are in compliance with any and all applicable requirements of the Sarbanes-Oxley Act of 2002 that are effective as of the date hereof, and any and all applicable rules and regulations promulgated by the Commission thereunder that are effective as of the date hereof and as of the Closing Date. The Company and the Subsidiaries maintain a system of internal accounting controls sufficient to provide reasonable assurance that: (i) transactions are executed in accordance with management's general or specific authorizations, (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP and to maintain asset accountability, (iii) access to assets is permitted only in accordance with management's general or specific authorization, and (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences. The Company and the Subsidiaries have established disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the Company and the Subsidiaries and designed such disclosure controls and procedures to ensure that information required to be disclosed by the Company in the reports it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Commission's rules and forms. The Company's certifying officers have evaluated the effectiveness of the disclosure controls and procedures of the Company and the Subsidiaries as of the end of the period covered by the most recently filed periodic report under the Exchange Act (such date, the "Evaluation Date"). The Company presented in its most recently filed periodic report under the Exchange Act the conclusions of the certifying officers about the effectiveness of the disclosure controls and procedures based on their evaluations as of the Evaluation Date. Since the Evaluation Date, there have been no changes in the internal control over financial reporting (as such term is defined in the Exchange Act) of the Company and its Subsidiaries that have materially affected, or is reasonably likely to materially affect, the internal control over financial reporting of the Company and its Subsidiaries.

(t) Certain Fees. Except as set forth in the Prospectus Supplement, no brokerage or finder's fees or commissions are or will be payable by the Company or any Subsidiary to any broker, financial advisor or consultant, finder, placement agent, investment banker, bank or other Person with respect to the transactions contemplated by the Transaction Documents. The Purchasers shall have no obligation with respect to any fees or with respect to any claims made by or on behalf of other Persons for fees of a type contemplated in this Section that may be due in connection with the transactions contemplated by the Transaction Documents.

(u) Investment Company. The Company is not, and is not an Affiliate of, and immediately after receipt of payment for the Securities, will not be or be an Affiliate of, an "investment company" within the meaning of the Investment Company Act of 1940, as amended. The Company shall conduct its business in a manner so that it will not become an "investment company" subject to registration under the Investment Company Act of 1940, as amended.

(v) Registration Rights. No Person has any right to cause the Company or any Subsidiary to effect the registration under the Securities Act of any securities of the Company or any Subsidiary.

(w) Listing and Maintenance Requirements. The Common Stock is registered pursuant to Section 12(b) or 12(g) of the Exchange Act, and the Company has taken no action designed to, or which to its knowledge is likely to have the effect of, terminating the registration of the Common Stock under the Exchange Act nor has the Company received any notification that the Commission is contemplating terminating such registration. Except as set forth on Schedule 3.1(w), the Company has not, in the 12 months preceding the date hereof, received notice from any Trading Market on which the Common Stock is or has been listed or quoted to the effect that the Company is not in compliance with the listing or maintenance requirements of such Trading Market. The Company is, and has no reason to believe that it will not in the foreseeable future continue to be, in compliance with all such listing and maintenance requirements. The Common Stock is currently eligible for electronic transfer through the Depository Trust Company or another established clearing corporation and the Company is current in payment of the fees to the Depository Trust Company (or such other established clearing corporation) in connection with such electronic transfer.

(x) Application of Takeover Protections. The Company and the Board of Directors have taken all necessary action, if any, in order to render inapplicable any control share acquisition, business combination, poison pill (including any distribution under a rights agreement) or other similar anti-takeover provision under the Company's certificate of incorporation (or similar charter documents) or the laws of its state of incorporation that is or could become applicable to the Purchasers as a result of the Purchasers and the Company fulfilling their obligations or exercising their rights under the Transaction Documents, including without limitation as a result of the Company's issuance of the Securities and the Purchasers' ownership of the Securities.

(y) Disclosure. Except with respect to the material terms and conditions of the transactions contemplated by the Transaction Documents, the Company confirms that neither it nor any other Person acting on its behalf has provided any of the Purchasers or their agents or counsel with any information that it believes constitutes or might constitute material, non-public information which is not otherwise disclosed in the Prospectus Supplement. The Company understands and confirms that the Purchasers will rely on the foregoing representation in effecting transactions in securities of the Company. All of the disclosure furnished by or on behalf of the Company to the Purchasers regarding the Company and its Subsidiaries, their respective businesses and the transactions contemplated hereby, including the Disclosure Schedules to this Agreement, is true and correct and does not contain any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements made therein, in the light of the circumstances under which they were made, not misleading. The press releases disseminated by the Company during the twelve months preceding the date of this Agreement taken as a whole do not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary in order to make the statements therein, in the light of the circumstances under which they were made and when made, not misleading. The Company acknowledges and agrees that no Purchaser makes or has made any representations or warranties with respect to the transactions contemplated hereby other than those specifically set forth in Section 3.2 hereof.

(z) No Integrated Offering. Assuming the accuracy of the Purchasers' representations and warranties set forth in Section 3.2, neither the Company, nor any of its Affiliates, nor any Person acting on its or their behalf has, directly or indirectly, made any offers or sales of any security or solicited any offers to buy any security, under circumstances that would cause this offering of the Securities to be integrated with prior offerings by the Company for purposes of any applicable shareholder approval provisions of any Trading Market on which any of the securities of the Company are listed or designated.

(aa) Solvency. Based on the consolidated financial condition of the Company as of the Closing Date, after giving effect to the receipt by the Company of the proceeds from the sale of the Securities hereunder, (i) the fair saleable value of the Company's assets exceeds the amount that will be required to be paid on or in respect of the Company's existing debts and other liabilities (including known contingent liabilities) as they mature, (ii) the Company's assets do not constitute unreasonably small capital to carry on its business as now conducted and as proposed to be conducted including its capital needs taking into account the particular capital requirements of the business conducted by the Company, consolidated and projected capital requirements and capital availability thereof, and (iii) the current cash flow of the Company, together with the proceeds the Company would receive, were it to liquidate all of its assets, after taking into account all anticipated uses of the cash, would be sufficient to pay all amounts on or in respect of its liabilities when such amounts are required to be paid. The Company does not intend to incur debts beyond its ability to pay such debts as they mature (taking into account the timing and amounts of cash to be payable on or in respect of its debt). The Company has no knowledge of any facts or circumstances which lead it to believe that it will file for reorganization or liquidation under the bankruptcy or reorganization laws of any jurisdiction within one year from the Closing Date. Schedule 3.1(aa) sets forth as of the date hereof all outstanding secured and unsecured Indebtedness of the Company or any Subsidiary, or for which the Company or any Subsidiary has commitments. For the purposes of this Agreement, "Indebtedness" means (x) any liabilities for borrowed money or amounts owed in excess of \$50,000 (other than trade accounts payable incurred in the ordinary course of business), (y) all guaranties, endorsements and other contingent obligations in respect of indebtedness of others, whether or not the same are or should be reflected in the Company's consolidated balance sheet (or the notes thereto), except guaranties by endorsement of negotiable instruments for deposit or collection or similar transactions in the ordinary course of business; and (z) the present value of any lease payments in excess of \$50,000 due under leases required to be capitalized in accordance with GAAP. Neither the Company nor any Subsidiary is in default with respect to any Indebtedness.

(bb) Tax Status. Except for matters that would not, individually or in the aggregate, have or reasonably be expected to result in a Material Adverse Effect, the Company and its Subsidiaries each (i) has made or filed all United States federal, state and local income and all foreign income and franchise tax returns, reports and declarations required by any jurisdiction to which it is subject, (ii) has paid all taxes and other governmental assessments and charges that are material in amount, shown or determined to be due on such returns, reports and declarations and (iii) has set aside on its books provision reasonably adequate for the payment of all material taxes for periods subsequent to the periods to which such returns, reports or declarations apply. There are no unpaid taxes in any material amount claimed to be due by the taxing authority of any jurisdiction, and the officers of the Company or of any Subsidiary know of no basis for any such claim.

(cc) Foreign Corrupt Practices. Neither the Company nor any Subsidiary, nor to the knowledge of the Company or any Subsidiary, any agent or other person acting on behalf of the Company or any Subsidiary, has (i) directly or indirectly, used any funds for unlawful contributions, gifts, entertainment or other unlawful expenses related to foreign or domestic political activity, (ii) made any unlawful payment to foreign or domestic government officials or employees or to any foreign or domestic political parties or campaigns from corporate funds, (iii) failed to disclose fully any contribution made by the Company or any Subsidiary (or made by any person acting on its behalf of which the Company is aware) which is in violation of law, or (iv) violated in any material respect any provision of FCPA.

(dd) Accountants. The Company's accounting firm is set forth on Schedule 3.1(dd) of the Disclosure Schedules. To the knowledge and belief of the Company, such accounting firm (i) is a registered public accounting firm as required by the Exchange Act and (ii) shall express its opinion with respect to the financial statements to be included in the Company's Annual Report for the fiscal year ending December 31, 2022.

(ee) Acknowledgment Regarding Purchasers' Purchase of Securities. The Company acknowledges and agrees that each of the Purchasers is acting solely in the capacity of an arm's length purchaser with respect to the Transaction Documents and the transactions contemplated thereby. The Company further acknowledges that no Purchaser is acting as a financial advisor or fiduciary of the Company (or in any similar capacity) with respect to the Transaction Documents and the transactions contemplated thereby and any advice given by any Purchaser or any of their respective representatives or agents in connection with the Transaction Documents and the transactions contemplated thereby is merely incidental to the Purchasers' purchase of the Securities. The Company further represents to each Purchaser that the Company's decision to enter into this Agreement and the other Transaction Documents has been based solely on the independent evaluation of the transactions contemplated hereby by the Company and its representatives.

(ff) Acknowledgment Regarding Purchaser's Trading Activity. Anything in this Agreement or elsewhere herein to the contrary notwithstanding (except for Sections 3.2(f) and 4.13 hereof), it is understood and acknowledged by the Company that: (i) none of the Purchasers has been asked by the Company to agree, nor has any Purchaser agreed, to desist from purchasing or selling, long and/or short, securities of the Company, or "derivative" securities based on securities issued by the Company or to hold the Securities for any specified term; (ii) past or future open market or other transactions by any Purchaser, specifically including, without limitation, Short Sales or "derivative" transactions, before or after the closing of this or future private placement transactions, may negatively impact the market price of the Company's publicly-traded securities; (iii) any Purchaser, and counter-parties in "derivative" transactions to which any such Purchaser is a party, directly or indirectly, presently may have a "short" position in the Common Stock, and (iv) each Purchaser shall not be deemed to have any affiliation with or control over any arm's length counter-party in any "derivative" transaction. The Company further understands and acknowledges that (y) one or more Purchasers may engage in hedging activities at various times during the period that the Shares are outstanding, including, without limitation, during the periods that the value of the Warrant Shares deliverable with respect to Securities are being determined and (z) such hedging activities (if any) could reduce the value of the existing stockholders' equity interests in the Company at and after the time that the hedging activities are being conducted. The Company acknowledges that such aforementioned hedging activities do not constitute a breach of any of the Transaction Documents.

(gg) Regulation M Compliance. The Company has not, and to its knowledge no one acting on its behalf has, (i) taken, directly or indirectly, any action designed to cause or to result in the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of any of the Securities, (ii) sold, bid for, purchased, or, paid any compensation for soliciting purchases of, any of the Securities, or (iii) paid or agreed to pay to any Person any compensation for soliciting another to purchase any other securities of the Company, other than, in the case of clauses (ii) and (iii), compensation paid to the Company's placement agent in connection with the placement of the Securities.

(hh) FDA. As to each product subject to the jurisdiction of the U.S. Food and Drug Administration ("FDA") under the Federal Food, Drug and Cosmetic Act, as amended, and the regulations thereunder ("FDCA") that is manufactured, packaged, labeled, tested, distributed, sold, and/or marketed by the Company or any of its Subsidiaries (each such product, a "Pharmaceutical Product"), such Pharmaceutical Product is being manufactured, packaged, labeled, tested, distributed, sold and/or marketed by the Company in compliance with all applicable requirements under FDCA and similar laws, rules and regulations relating to registration, investigational use, premarket clearance, licensure, or application approval, good manufacturing practices, good laboratory practices, good clinical practices, product listing, quotas, labeling, advertising, record keeping and filing of reports, except where the failure to be in compliance would not have a Material Adverse Effect. There is no pending, completed or, to the Company's knowledge, threatened, action (including any lawsuit, arbitration, or legal or administrative or regulatory proceeding, charge, complaint, or investigation) against the Company or any of its Subsidiaries, and none of the Company or any of its Subsidiaries has received any notice, warning letter or other communication from the FDA or any other governmental entity, which (i) contests the premarket clearance, licensure, registration, or approval of, the uses of, the distribution of, the manufacturing or packaging of, the testing of, the sale of, or the labeling and promotion of any Pharmaceutical Product, (ii) withdraws its approval of, requests the recall, suspension, or seizure of, or withdraws or orders the withdrawal of advertising or sales promotional materials relating to, any Pharmaceutical Product, (iii) imposes a clinical hold on any clinical investigation by the Company or any of its Subsidiaries, (iv) enjoins production at any facility of the Company or any of its Subsidiaries, (v) enters or proposes to enter into a consent decree of permanent injunction with the Company or any of its Subsidiaries, or (vi) otherwise alleges any violation of any laws, rules or regulations by the Company or any of its Subsidiaries, and which, either individually or in the aggregate, would have a Material Adverse Effect. The properties, business and operations of the Company have been and are being conducted in all material respects in accordance with all applicable laws, rules and regulations of the FDA. The Company has not been informed by the FDA that the FDA will prohibit the marketing, sale, license or use in the United States of any product proposed to be developed, produced or marketed by the Company nor has the FDA expressed any concern as to approving or clearing for marketing any product being developed or proposed to be developed by the Company.

(ii) Stock Option Plans. Each stock option granted by the Company under the Company's stock option plan was granted (i) in accordance with the terms of the Company's stock option plan and (ii) with an exercise price at least equal to the fair market value of the Common Stock on the date such stock option would be considered granted under GAAP and applicable law. No stock option granted under the Company's stock option plan has been backdated. The Company has not knowingly granted, and there is no and has been no Company policy or practice to knowingly grant, stock options prior to, or otherwise knowingly coordinate the grant of stock options with, the release or other public announcement of material information regarding the Company or its Subsidiaries or their financial results or prospects.

(jj) Office of Foreign Assets Control. Neither the Company nor any Subsidiary nor, to the Company's knowledge, any director, officer, agent, employee or affiliate of the Company or any Subsidiary is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Treasury Department ("OFAC").

(kk) U.S. Real Property Holding Corporation. The Company is not and has never been a U.S. real property holding corporation within the meaning of Section 897 of the Internal Revenue Code of 1986, as amended, and the Company shall so certify upon Purchaser's request.

(ll) Bank Holding Company Act. Neither the Company nor any of its Subsidiaries or Affiliates is subject to the Bank Holding Company Act of 1956, as amended (the "BHCA") and to regulation by the Board of Governors of the Federal Reserve System (the "Federal Reserve"). Neither the Company nor any of its Subsidiaries or Affiliates owns or controls, directly or indirectly, five percent (5%) or more of the outstanding shares of any class of voting securities or twenty-five percent or more of the total equity of a bank or any entity that is subject to the BHCA and to regulation by the Federal Reserve. Neither the Company nor any of its Subsidiaries or Affiliates exercises a controlling influence over the management or policies of a bank or any entity that is subject to the BHCA and to regulation by the Federal Reserve.

(mm) Money Laundering. The operations of the Company and its Subsidiaries are and have been conducted at all times in compliance with applicable financial record-keeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, applicable money laundering statutes and applicable rules and regulations thereunder (collectively, the "Money Laundering Laws"), and no Action or Proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any Subsidiary with respect to the Money Laundering Laws is pending or, to the knowledge of the Company or any Subsidiary, threatened.

3.2 Representations and Warranties of the Purchasers. Each Purchaser, for itself and for no other Purchaser, hereby represents and warrants as of the date hereof and as of the Closing Date to the Company as follows (unless as of a specific date therein, in which case they shall be accurate as of such date):

(a) Organization; Authority. Such Purchaser is either an individual or an entity duly incorporated or formed, validly existing and in good standing under the laws of the jurisdiction of its incorporation or formation with full right, corporate, partnership limited liability company or similar power and authority to enter into and to consummate the transactions contemplated by the Transaction Documents and otherwise to carry out its obligations hereunder and thereunder. The execution and delivery of the Transaction Documents and performance by such Purchaser of the transactions contemplated by the Transaction Documents have been duly authorized by all necessary corporate, partnership, limited liability company or similar action, as applicable, on the part of such Purchaser. Each Transaction Document to which it is a party has been duly executed by such Purchaser, and when delivered by such Purchaser in accordance with the terms hereof, will constitute the valid and legally binding obligation of such Purchaser, enforceable against it in accordance with its terms, except: (i) as limited by general equitable principles and applicable bankruptcy, insolvency, reorganization, moratorium and other laws of general application affecting enforcement of creditors' rights generally, (ii) as limited by laws relating to the availability of specific performance, injunctive relief or other equitable remedies and (iii) insofar as indemnification and contribution provisions may be limited by applicable law.

(b) Understandings or Arrangements. Such Purchaser is acquiring the Securities as principal for its own account and has no direct or indirect arrangement or understandings with any other persons to distribute or regarding the distribution of such Securities (this representation and warranty not limiting such Purchaser's right to sell the Securities pursuant to the Registration Statement or otherwise in compliance with applicable federal and state securities laws). Such Purchaser is acquiring the Securities hereunder in the ordinary course of its business. Such Purchaser is acquiring the Securities hereunder in the ordinary course of its business. Such Purchaser understands that the Common Warrants and the Common Warrant Shares are "restricted securities" and have not been registered under the Securities Act or any applicable state securities law and is acquiring such Securities as principal for his, her or its own account and not with a view to or for distributing or reselling such Securities or any part thereof in violation of the Securities Act or any applicable state securities law, has no present intention of distributing any of such Securities in violation of the Securities Act or any applicable state securities law and has no direct or indirect arrangement or understandings with any other persons to distribute or regarding the distribution of such Securities in violation of the Securities Act or any applicable state securities law (this representation and warranty not limiting such Purchaser's right to sell such Securities pursuant to a registration statement or otherwise in compliance with applicable federal and state securities laws).

(c) Purchaser Status. At the time such Purchaser was offered the Securities, it was, and as of the date hereof it is, and on each date on which it exercises any Warrants, it will be either: (i) an "accredited investor" as defined in Rule 501(a)(1), (a)(2), (a)(3), (a)(7), (a)(8), (a)(9), (a)(12), or (a)(13) under the Securities Act or (ii) a "qualified institutional buyer" as defined in Rule 144A(a) under the Securities Act.

(d) Experience of Such Purchaser. Such Purchaser, either alone or together with its representatives, has such knowledge, sophistication and experience in business and financial matters so as to be capable of evaluating the merits and risks of the prospective investment in the Securities, and has so evaluated the merits and risks of such investment. Such Purchaser is able to bear the economic risk of an investment in the Securities and, at the present time, is able to afford a complete loss of such investment.

(e) Access to Information. Such Purchaser acknowledges that it has had the opportunity to review the Transaction Documents (including all exhibits and schedules thereto) and the SEC Reports and has been afforded, (i) the opportunity to ask such questions as it has deemed necessary of, and to receive answers from, representatives of the Company concerning the terms and conditions of the offering of the Securities and the merits and risks of investing in the Securities; (ii) access to information about the Company and its financial condition, results of operations, business, properties, management and prospects sufficient to enable it to evaluate its investment; and (iii) the opportunity to obtain such additional information that the Company possesses or can acquire without unreasonable effort or expense that is necessary to make an informed investment decision with respect to the investment. Such Purchaser acknowledges and agrees that neither the Placement Agent nor any Affiliate of the Placement Agent has provided such Purchaser with any information or advice with respect to the Securities nor is such information or advice necessary or desired. Neither the Placement Agent nor any Affiliate has made or makes any representation as to the Company or the quality of the Securities and the Placement Agent and any Affiliate may have acquired non-public information with respect to the Company which such Purchaser agrees need not be provided to it. In connection with the issuance of the Securities to such Purchaser, neither the Placement Agent nor any of its Affiliates has acted as a financial advisor or fiduciary to such Purchaser.

(f) Certain Transactions and Confidentiality. Other than consummating the transactions contemplated hereunder, such Purchaser has not, nor has any Person acting on behalf of or pursuant to any understanding with such Purchaser, directly or indirectly executed any purchases or sales, including Short Sales, of the securities of the Company during the period commencing as of the time that such Purchaser first received a term sheet (written or oral) from the Company or any other Person representing the Company setting forth the material terms of the transactions contemplated hereunder and ending immediately prior to the execution hereof. Notwithstanding the foregoing, in the case of a Purchaser that is a multi-managed investment vehicle whereby separate portfolio managers manage separate portions of such Purchaser's assets and the portfolio managers have no direct knowledge of the investment decisions made by the portfolio managers managing other portions of such Purchaser's assets, the representation set forth above shall only apply with respect to the portion of assets managed by the portfolio manager that made the investment decision to purchase the Securities covered by this Agreement. Other than to other Persons party to this Agreement or to such Purchaser's representatives, including, without limitation, its officers, directors, partners, legal and other advisors, employees, agents and Affiliates, such Purchaser has maintained the confidentiality of all disclosures made to it in connection with this transaction (including the existence and terms of this transaction). Notwithstanding the foregoing, for the avoidance of doubt, nothing contained herein shall constitute a representation or warranty, or preclude any actions, with respect to locating or borrowing shares in order to effect Short Sales or similar transactions in the future.

(g) General Solicitation. Such Purchaser is not purchasing the Securities as a result of any advertisement, article, notice or other communication regarding the Securities published in any newspaper, magazine or similar media or broadcast over television or radio or presented at any seminar or, to the knowledge of such Purchaser, any other general solicitation or general advertisement; provided, further, that, prior to receiving any communications relating to the transaction contemplated pursuant to this Agreement, such Purchaser had a “pre-existing” and “substantive relationship” with either the Company or the Placement Agent, as such terms are defined in SEC Division of Corporation and Finance Compliance and Disclosure Interpretations.

The Company acknowledges and agrees that the representations contained in this Section 3.2 shall not modify, amend or affect such Purchaser’s right to rely on the Company’s representations and warranties contained in this Agreement or any representations and warranties contained in any other Transaction Document or any other document or instrument executed and/or delivered in connection with this Agreement or the consummation of the transactions contemplated hereby. Notwithstanding the foregoing, for the avoidance of doubt, nothing contained herein shall constitute a representation or warranty, or preclude any actions, with respect to locating or borrowing shares in order to effect Short Sales or similar transactions in the future.

ARTICLE IV. OTHER AGREEMENTS OF THE PARTIES

4.1 Warrant Shares. If all or any portion of a Pre-Funded Warrant is exercised at a time when there is an effective registration statement to cover the issuance or resale of the Pre-Funded Warrant Shares or if the Pre-Funded Warrant is exercised via cashless exercise, the Pre-Funded Warrant Shares issued pursuant to any such exercise shall be issued free of all legends. If at any time following the date hereof the Registration Statement (or any subsequent registration statement registering the sale or resale of the Pre-Funded Warrant Shares) is not effective or is not otherwise available for the sale or resale of the Pre-Funded Warrant Shares, the Company shall immediately notify the holders of the Pre-Funded Warrants in writing that such registration statement is not then effective and thereafter shall promptly notify such holders when the registration statement is effective again and available for the sale or resale of the Pre-Funded Warrant Shares (it being understood and agreed that the foregoing shall not limit the ability of the Company to issue, or any Purchaser to sell, any of the Pre-Funded Warrant Shares in compliance with applicable federal and state securities laws). The Company shall use best efforts to keep a registration statement (including the Registration Statement) registering the issuance or resale of the Pre-Funded Warrant Shares effective during the term of the Pre-Funded Warrants.

4.2 Furnishing of Information. Until the time that (i) no Purchaser owns Securities or (ii) the Warrants have expired, the Company covenants to timely file (or obtain extensions in respect thereof and file within the applicable grace period) all reports required to be filed by the Company after the date hereof pursuant to the Exchange Act even if the Company is not then subject to the reporting requirements of the Exchange Act.

4.3 Integration. The Company shall not sell, offer for sale or solicit offers to buy or otherwise negotiate in respect of any security (as defined in Section 2 of the Securities Act) that would be integrated with the offer or sale of the Securities for purposes of the rules and regulations of any Trading Market such that it would require shareholder approval prior to the closing of such other transaction unless shareholder approval is obtained before the closing of such subsequent transaction.

4.4 Securities Laws Disclosure; Publicity. The Company shall (a) by the Disclosure Time, issue a press release disclosing the material terms of the transactions contemplated hereby, and (b) file a Current Report on Form 8-K, including the Transaction Documents required to be filed as exhibits thereto, with the Commission within the time required by the Exchange Act. From and after the issuance of such press release, the Company represents to the Purchasers that it shall have publicly disclosed all material, non-public information delivered to any of the Purchasers by the Company or any of its Subsidiaries, or any of their respective officers, directors, employees or agents in connection with the transactions contemplated by the Transaction Documents. In addition, effective upon the issuance of such press release, the Company acknowledges and agrees that any and all confidentiality or similar obligations under any agreement, whether written or oral, between the Company, any of its Subsidiaries or any of their respective officers, directors, agents, employees or Affiliates on the one hand, and any of the Purchasers or any of their Affiliates on the other hand, shall terminate. The Company and each Purchaser shall consult with each other in issuing any other press releases with respect to the transactions contemplated hereby, and neither the Company nor any Purchaser shall issue any such press release nor otherwise make any such public statement without the prior consent of the Company, with respect to any press release of any Purchaser, or without the prior consent of each Purchaser, with respect to any press release of the Company, which consent shall not unreasonably be withheld or delayed, except if such disclosure is required by law, in which case the disclosing party shall promptly provide the other party with prior notice of such public statement or communication. Notwithstanding the foregoing, the Company shall not publicly disclose the name of any Purchaser, or include the name of any Purchaser in any filing with the Commission or any regulatory agency or Trading Market, without the prior written consent of such Purchaser, except (a) as required by federal securities law in connection with the filing of final Transaction Documents with the Commission and (b) to the extent such disclosure is required by law or Trading Market regulations, in which case the Company shall provide the Purchasers with prior notice of such disclosure permitted under this clause (b).

4.5 Shareholder Rights Plan. No claim will be made or enforced by the Company or, with the consent of the Company, any other Person, that any Purchaser, as of the Closing Date, is an “Acquiring Person” under any control share acquisition, business combination, poison pill (including any distribution under a rights agreement) or similar anti-takeover plan or arrangement in effect or hereafter adopted by the Company, or that any Purchaser, as of the Closing Date, could be deemed to trigger the provisions of any such plan or arrangement, by virtue of receiving Securities under the Transaction Documents or under any other agreement between the Company and the Purchasers as of the Closing Date.

4.6 Non-Public Information. Except with respect to the material terms and conditions of the transactions contemplated by the Transaction Documents, which shall be disclosed pursuant to Section 4.4, the Company covenants and agrees that neither it, nor any other Person acting on its behalf will provide any Purchaser or its agents or counsel with any information that constitutes, or the Company reasonably believes constitutes, material non-public information, unless prior thereto such Purchaser shall have consented to the receipt of such information and agreed with the Company to keep such information confidential. The Company understands and confirms that each Purchaser shall be relying on the foregoing covenant in effecting transactions in securities of the Company. To the extent that the Company, any of its Subsidiaries, or any of their respective officers, directors, agents, employees or Affiliates delivers any material, non-public information to a Purchaser without such Purchaser's consent, the Company hereby covenants and agrees that such Purchaser shall not have any duty of confidentiality to the Company, any of its Subsidiaries, or any of their respective officers, directors, agents, employees or Affiliates, or a duty to the Company, any of its Subsidiaries or any of their respective officers, directors, agents, employees or Affiliates not to trade on the basis of, such material, non-public information, provided that the Purchaser shall remain subject to applicable law. To the extent that any notice provided pursuant to any Transaction Document constitutes, or contains, material, non-public information regarding the Company or any Subsidiaries, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K. The Company understands and confirms that each Purchaser shall be relying on the foregoing covenant in effecting transactions in securities of the Company.

4.7 Use of Proceeds. The Company shall use the net proceeds from the sale of the Securities hereunder for working capital and general corporate purposes and shall not use such proceeds: (a) for the satisfaction of any portion of the Company's debt (other than payment of trade payables in the ordinary course of the Company's business and prior practices), (b) for the redemption of any Common Stock or Common Stock Equivalents, (c) for the settlement of any outstanding litigation or (d) in violation of FCPA or OFAC regulations.

4.8 Indemnification of Purchasers. Subject to the provisions of this Section 4.7, the Company will indemnify and hold each Purchaser and its directors, officers, shareholders, members, partners, employees and agents (and any other Persons with a functionally equivalent role of a Person holding such titles notwithstanding a lack of such title or any other title), each Person who controls such Purchaser (within the meaning of Section 15 of the Securities Act and Section 20 of the Exchange Act), and the directors, officers, shareholders, agents, members, partners or employees (and any other Persons with a functionally equivalent role of a Person holding such titles notwithstanding a lack of such title or any other title) of such controlling persons (each, a “Purchaser Party”) harmless from any and all losses, liabilities, obligations, claims, contingencies, damages, costs and expenses, including all judgments, amounts paid in settlements, court costs and reasonable attorneys’ fees and costs of investigation that any such Purchaser Party may suffer or incur as a result of or relating to (a) any breach of any of the representations, warranties, covenants or agreements made by the Company in this Agreement or in the other Transaction Documents or (b) any action instituted against the Purchaser Parties in any capacity, or any of them or their respective Affiliates, by any stockholder of the Company who is not an Affiliate of such Purchaser Party, with respect to any of the transactions contemplated by the Transaction Documents (unless such action is solely based upon a material breach of such Purchaser Party’s representations, warranties or covenants under the Transaction Documents or any agreements or understandings such Purchaser Party may have with any such stockholder or any violations by such Purchaser Party of state or federal securities laws or any conduct by such Purchaser Party which is finally judicially determined to constitute fraud, gross negligence or willful misconduct). If any action shall be brought against any Purchaser Party in respect of which indemnity may be sought pursuant to this Agreement, such Purchaser Party shall promptly notify the Company in writing, and the Company shall have the right to assume the defense thereof with counsel of its own choosing reasonably acceptable to the Purchaser Party. Any Purchaser Party shall have the right to employ separate counsel in any such action and participate in the defense thereof, but the fees and expenses of such counsel shall be at the expense of such Purchaser Party except to the extent that (i) the employment thereof has been specifically authorized by the Company in writing, (ii) the Company has failed after a reasonable period of time to assume such defense and to employ counsel or (iii) in such action there is, in the reasonable opinion of counsel, a material conflict on any material issue between the position of the Company and the position of such Purchaser Party, in which case the Company shall be responsible for the reasonable fees and expenses of no more than one such separate counsel. The Company will not be liable to any Purchaser Party under this Agreement (y) for any settlement by a Purchaser Party effected without the Company’s prior written consent, which shall not be unreasonably withheld or delayed; or (z) to the extent, but only to the extent that a loss, claim, damage or liability is attributable to any Purchaser Party’s breach of any of the representations, warranties, covenants or agreements made by such Purchaser Party in this Agreement or in the other Transaction Documents. The indemnification required by this Section 4.8 shall be made by periodic payments of the amount thereof during the course of the investigation or defense, as and when bills are received or are incurred. The indemnity agreements contained herein shall be in addition to any cause of action or similar right of any Purchaser Party against the Company or others and any liabilities the Company may be subject to pursuant to law.

4.9 Listing of Common Stock. The Company hereby agrees to use best efforts to maintain the listing or quotation of the Common Stock on the Trading Market on which it is currently listed, and concurrently with the Closing, the Company shall apply to list or quote all of the Shares and Warrant Shares on such Trading Market and promptly secure the listing of all of the Shares and Warrant Shares on such Trading Market. The Company further agrees, if the Company applies to have the Common Stock traded on any other Trading Market, it will then include in such application all of the Shares and Warrant Shares, and will take such other action as is necessary to cause all of the Shares and Warrant Shares to be listed or quoted on such other Trading Market as promptly as possible. The Company will then take all action reasonably necessary to continue the listing and trading of its Common Stock on a Trading Market and will comply in all respects with the Company’s reporting, filing and other obligations under the bylaws or rules of the Trading Market. The Company agrees to maintain the eligibility of the Common Stock for electronic transfer through the Depository Trust Company or another established clearing corporation, including, without limitation, by timely payment of fees to the Depository Trust Company or such other established clearing corporation in connection with such electronic transfer.

4.10 Reservation of Common Stock. As of the date hereof, the Company has reserved and the Company shall continue to reserve and keep available at all times, free of preemptive rights, a sufficient number of shares of Common Stock for the purpose of enabling the Company to issue Shares pursuant to this Agreement and Warrant Shares pursuant to any exercise of the Warrants.

4.11 Subsequent Equity Sales.

(a)

(i) From the date hereof until ninety (90) days after the Closing Date, neither the Company nor any Subsidiary shall issue, enter into any agreement to issue or announce the issuance or proposed issuance of any shares of Common Stock or Common Stock Equivalents.

(ii) From the date hereof until ninety (90) days after the Closing Date, neither the Company nor any Subsidiary shall file any registration statement or amendment or supplement thereto, other than (i) the Prospectus Supplement, (ii) filing a registration statement on Form S-8 in connection with any employee benefit plan or (iii) filing a registration statement to register the resale of the Common Warrant Shares.

(b) From the date hereof until six (6) months after the Closing Date, neither the Company nor any Subsidiary shall effect or enter into an agreement to effect any issuance by the Company or any Subsidiary of Common Stock or Common Stock Equivalents (or a combination of units thereof) involving a Variable Rate Transaction. "Variable Rate Transaction" means a transaction in which the Company (i) issues or sells any debt or equity securities that are convertible into, exchangeable or exercisable for, or include the right to receive additional shares of Common Stock either (A) at a conversion price, exercise price or exchange rate or other price that is based upon and/or varies with the trading prices of or quotations for the shares of Common Stock at any time after the initial issuance of such debt or equity securities, or (B) with a conversion, exercise or exchange price that is subject to being reset at some future date after the initial issuance of such debt or equity security or upon the occurrence of specified or contingent events directly or indirectly related to the business of the Company or the market for the Common Stock or (ii) enters into, or effects a transaction under, any agreement, including, but not limited to, an equity line of credit or at the market facility, whereby the Company may issue securities at a future determined price. Any Purchaser shall be entitled to obtain injunctive relief against the Company to preclude any such issuance, which remedy shall be in addition to any right to collect damages.

(c) Notwithstanding the foregoing, this Section 4.11 shall not apply in respect of an Exempt Issuance, except that no Variable Rate Transaction shall be an Exempt Issuance.

4.12 Equal Treatment of Purchasers. No consideration (including any modification of any Transaction Document) shall be offered or paid to any Person to amend or consent to a waiver or modification of any provision of any of the Transaction Documents unless the same consideration is also offered to all of the parties to such Transaction Document. For clarification purposes, this provision constitutes a separate right granted to each Purchaser by the Company and negotiated separately by each Purchaser, and is intended for the Company to treat the Purchasers as a class and shall not in any way be construed as the Purchasers acting in concert or as a group with respect to the purchase, disposition or voting of Securities or otherwise.

4.13 Certain Transactions and Confidentiality. Each Purchaser, severally and not jointly with the other Purchasers, covenants that neither it nor any Affiliate acting on its behalf or pursuant to any understanding with it will execute any purchases or sales, including Short Sales of any of the Company's securities during the period commencing with the execution of this Agreement and ending at such time that the transactions contemplated by this Agreement are first publicly announced pursuant to the initial press release as described in Section 4.4. Each Purchaser, severally and not jointly with the other Purchasers, covenants that until such time as the transactions contemplated by this Agreement are publicly disclosed by the Company pursuant to the initial press release as described in Section 4.4, such Purchaser will maintain the confidentiality of the existence and terms of this transaction and the information included in the Disclosure Schedules. Notwithstanding the foregoing, and notwithstanding anything contained in this Agreement to the contrary, the Company expressly acknowledges and agrees that (i) no Purchaser makes any representation, warranty or covenant hereby that it will not engage in effecting transactions in any securities of the Company after the time that the transactions contemplated by this Agreement are first publicly announced pursuant to the initial press release as described in Section 4.4, (ii) no Purchaser shall be restricted or prohibited from effecting any transactions in any securities of the Company in accordance with applicable securities laws from and after the time that the transactions contemplated by this Agreement are first publicly announced pursuant to the initial press release as described in Section 4.4 and (iii) no Purchaser shall have any duty of confidentiality or duty not to trade in the securities of the Company to the Company or its Subsidiaries after the issuance of the initial press release as described in Section 4.4. Notwithstanding the foregoing, in the case of a Purchaser that is a multi-managed investment vehicle whereby separate portfolio managers manage separate portions of such Purchaser's assets and the portfolio managers have no direct knowledge of the investment decisions made by the portfolio managers managing other portions of such Purchaser's assets, the covenant set forth above shall only apply with respect to the portion of assets managed by the portfolio manager that made the investment decision to purchase the Securities covered by this Agreement.

4.14 Capital Changes. Until the one year anniversary of the Closing Date, the Company shall not undertake a reverse or forward stock split or reclassification of the Common Stock without the prior written consent of the Purchasers holding a majority in interest of the Shares; provided, however, that the prohibition in this Section 4.13 shall not apply to a reverse stock split or reclassification that is effected in order to maintain the listing of the Company's Common Stock on a national securities exchange.

4.15 Exercise Procedure. The form of Notice of Exercise included in the Warrants set forth the totality of the procedures required of the Purchasers in order to exercise the Warrants. No additional legal opinion, other information or instructions shall be required of the Purchasers to exercise their Warrants. Without limiting the preceding sentences, no ink-original Notice of Exercise shall be required, nor shall any medallion guarantee (or other type of guarantee or notarization) of any Notice of Exercise form be required in order to exercise the Warrants. The Company shall honor exercises of the Warrants and shall deliver Warrant Shares in accordance with the terms, conditions and time periods set forth in the Transaction Documents.

4.16 Lock-Up Agreements. The Company shall not amend, modify, waive or terminate any provision of any of the Lock-Up Agreements except to extend the term of the lock-up period and shall enforce the provisions of each Lock-Up Agreement in accordance with its terms. If any party to a Lock-Up Agreement breaches any provision of a Lock-Up Agreement, the Company shall promptly use its best efforts to seek specific performance of the terms of such Lock-Up Agreement.

4.17 Registration Rights. On or before the sixtieth (60) day following the Closing Date, the Company will file a registration statement with the Commission registering for resale the Warrant Shares, and such registration statement will be declared effective by the Commission no later than the one hundred and eightieth (180) day following the Closing Date.

4.18 Right of Participation.

(a) From the date hereof until the date that is the one year anniversary of the Closing Date, upon any issuance by the Company or any of its Subsidiaries of Common Stock or Common Stock Equivalents for cash consideration, Indebtedness or a combination of units thereof (a “Subsequent Financing”), each Purchaser shall have the right to participate in up to an amount of the Subsequent Financing equal to 50% of the Subsequent Financing (the “Participation Maximum”) on the same terms, conditions and price provided for in the Subsequent Financing.

(b) Between the time period of 4:00 pm (New York City time) and 6:00 pm (New York City time) on the Trading Day immediately prior to the Trading Day of the expected announcement of the Subsequent Financing (or, if the Trading Day of the expected announcement of the Subsequent Financing is the first Trading Day following a holiday or a weekend (including a holiday weekend), between the time period of 4:00 pm (New York City time) on the Trading Day immediately prior to such holiday or weekend and 2:00 pm (New York City time) on the day immediately prior to the Trading Day of the expected announcement of the Subsequent Financing), the Company shall deliver to each Purchaser a written notice of the Company’s intention to effect a Subsequent Financing (a “Subsequent Financing Notice”), which notice shall describe in reasonable detail the proposed terms of such Subsequent Financing, the amount of proceeds intended to be raised thereunder and the Person or Persons through or with whom such Subsequent Financing is proposed to be effected and shall include a term sheet and transaction documents relating thereto as an attachment.

(c) Any Purchaser desiring to participate in such Subsequent Financing must provide written notice to the Company by 6:30 am (New York City time) on the Trading Day following the date on which the Subsequent Financing Notice is delivered to such Purchaser (the “Notice Termination Time”) that such Purchaser is willing to participate in the Subsequent Financing, the amount of such Purchaser’s participation, and representing and warranting that such Purchaser has such funds ready, willing, and available for investment on the terms set forth in the Subsequent Financing Notice. If the Company receives no such notice from a Purchaser as of such Notice Termination Time, such Purchaser shall be deemed to have notified the Company that it does not elect to participate in such Subsequent Financing.

(d) If, by the Notice Termination Time, notifications by the Purchasers of their willingness to participate in the Subsequent Financing (or to cause their designees to participate) is, in the aggregate, less than the total amount of the Subsequent Financing, then the Company may affect the remaining portion of such Subsequent Financing on the terms and with the Persons set forth in the Subsequent Financing Notice.

(e) If, by the Notice Termination Time, the Company receives responses to a Subsequent Financing Notice from Purchasers seeking to purchase more than the aggregate amount of the Participation Maximum, each such Purchaser shall have the right to purchase its Pro Rata Portion (as defined below) of the Participation Maximum. “Pro Rata Portion” means the ratio of (x) the Subscription Amount of Securities purchased on the Closing Date by a Purchaser participating under this Section 4.18 and (y) the sum of the aggregate Subscription Amounts of Securities purchased on the Closing Date by all Purchasers participating under this Section 4.18.

(f) The Company must provide the Purchasers with a second Subsequent Financing Notice, and the Purchasers will again have the right of participation set forth above in this Section 4.18, if the definitive agreement related to the initial Subsequent Financing Notice is not entered into for any reason on the terms set forth in such Subsequent Financing Notice within two (2) Trading Days after the date of delivery of the initial Subsequent Financing Notice.

(g) The Company and each Purchaser agree that, if any Purchaser elects to participate in the Subsequent Financing, the transaction documents related to the Subsequent Financing shall not include any term or provision that, directly or indirectly, will, or is intended to, exclude one or more of the Purchasers from participating in a Subsequent Financing, including, but not limited to, provisions whereby such Purchaser shall be required to agree to any restrictions on trading as to any the securities of the Company or be required to consent to any amendment to or termination of, or grant any waiver, release or the like under or in connection with, this Agreement, without the prior written consent of such Purchaser. In addition, the Company and each Purchaser agree that, in connection with a Subsequent Financing, the transaction documents related to the Subsequent Financing shall include a requirement for the Company to issue a widely disseminated press release by 9:30 am (New York City time) on the Trading Day of execution of the transaction documents in such Subsequent Financing (or, if the date of execution is not a Trading Day, on the immediately following Trading Day) that discloses the material terms of the transactions contemplated by the transaction documents in such Subsequent Financing.

(h) Notwithstanding anything to the contrary in this Section 4.18 and unless otherwise agreed to by such Purchaser, the Company shall either confirm in writing to such Purchaser that the transaction with respect to the Subsequent Financing has been abandoned or shall publicly disclose its intention to issue the securities in the Subsequent Financing, in either case in such a manner such that such Purchaser will not be in possession of any material, non-public information, by 9:30 am (New York City time) on the second (2nd) Trading Day following date of delivery of the Subsequent Financing Notice. If by 9:30 am (New York City time) on such second (2nd) Trading Day, no public disclosure regarding a transaction with respect to the Subsequent Financing has been made, and no notice regarding the abandonment of such transaction has been received by such Purchaser, such transaction shall be deemed to have been abandoned and such Purchaser shall not be deemed to be in possession of any material, non-public information with respect to the Company or any of its Subsidiaries.

- (i) Notwithstanding the foregoing, this Section 4.18 shall not apply in respect of an Exempt Issuance.

ARTICLE V.
MISCELLANEOUS

5.1 **Termination.** This Agreement may be terminated by any Purchaser, as to such Purchaser's obligations hereunder only and without any effect whatsoever on the obligations between the Company and the other Purchasers, by written notice to the other parties, if the Closing has not been consummated on or before the fifth (5th) Trading Day following the date hereof; provided, however, that no such termination will affect the right of any party to sue for any breach by any other party (or parties).

5.2 **Fees and Expenses.** Except as expressly set forth in the Transaction Documents to the contrary, each party shall pay the fees and expenses of its advisers, counsel, accountants and other experts, if any, and all other expenses incurred by such party incident to the negotiation, preparation, execution, delivery and performance of this Agreement. The Company shall pay all Transfer Agent fees (including, without limitation, any fees required for same-day processing of any instruction letter delivered by the Company), stamp taxes and other taxes and duties levied in connection with the delivery of any Securities to the Purchasers.

5.3 **Entire Agreement.** The Transaction Documents, together with the exhibits and schedules thereto, the Prospectus and the Prospectus Supplement, contain the entire understanding of the parties with respect to the subject matter hereof and thereof and supersede all prior agreements and understandings, oral or written, with respect to such matters, which the parties acknowledge have been merged into such documents, exhibits and schedules.

5.4 **Notices.** Any and all notices or other communications or deliveries required or permitted to be provided hereunder shall be in writing and shall be deemed given and effective on the earliest of: (a) the time of transmission, if such notice or communication is delivered via facsimile at the facsimile number or email attachment at the email address as set forth on the signature pages attached hereto at or prior to 5:30 p.m. (New York City time) on a Trading Day, (b) the next Trading Day after the time of transmission, if such notice or communication is delivered via facsimile at the facsimile number or email attachment at the email address as set forth on the signature pages attached hereto on a day that is not a Trading Day or later than 5:30 p.m. (New York City time) on any Trading Day, (c) the second (2nd) Trading Day following the date of mailing, if sent by U.S. nationally recognized overnight courier service or (d) upon actual receipt by the party to whom such notice is required to be given. The address for such notices and communications shall be as set forth on the signature pages attached hereto.

5.5 Amendments; Waivers. No provision of this Agreement may be waived, modified, supplemented or amended except in a written instrument signed, in the case of an amendment, by the Company and Purchasers which purchased at least 50.1% in interest of the Shares based on the initial Subscription Amounts hereunder (or, prior to the Closing, the Company and each Purchaser) or, in the case of a waiver, by the party against whom enforcement of any such waived provision is sought, provided that if any amendment, modification or waiver disproportionately and adversely impacts a Purchaser (or group of Purchasers), the consent of such disproportionately impacted Purchaser (or group of Purchasers) shall also be required. No waiver of any default with respect to any provision, condition or requirement of this Agreement shall be deemed to be a continuing waiver in the future or a waiver of any subsequent default or a waiver of any other provision, condition or requirement hereof, nor shall any delay or omission of any party to exercise any right hereunder in any manner impair the exercise of any such right. Any proposed amendment or waiver that disproportionately, materially and adversely affects the rights and obligations of any Purchaser relative to the comparable rights and obligations of the other Purchasers shall require the prior written consent of such adversely affected Purchaser. Any amendment effected in accordance with this Section 5.5 shall be binding upon each Purchaser and holder of Securities and the Company.

5.6 Headings. The headings herein are for convenience only, do not constitute a part of this Agreement and shall not be deemed to limit or affect any of the provisions hereof.

5.7 Successors and Assigns. This Agreement shall be binding upon and inure to the benefit of the parties and their successors and permitted assigns. The Company may not assign this Agreement or any rights or obligations hereunder without the prior written consent of each Purchaser (other than by merger). Any Purchaser may assign any or all of its rights under this Agreement to any Person to whom such Purchaser assigns or transfers any Securities, provided that such transferee agrees in writing to be bound, with respect to the transferred Securities, by the provisions of the Transaction Documents that apply to the "Purchasers."

5.8 No Third-Party Beneficiaries. The Placement Agent shall be the third party beneficiary of the representations and warranties of the Company in Section 3.1 and the representations and warranties of the Purchasers in Section 3.2. This Agreement is intended for the benefit of the parties hereto and their respective successors and permitted assigns and is not for the benefit of, nor may any provision hereof be enforced by, any other Person, except as otherwise set forth in Section 4.7 and this Section 5.8.

5.9 Governing Law. All questions concerning the construction, validity, enforcement and interpretation of the Transaction Documents shall be governed by and construed and enforced in accordance with the internal laws of the State of New York, without regard to the principles of conflicts of law thereof. Each party agrees that all legal Proceedings concerning the interpretations, enforcement and defense of the transactions contemplated by this Agreement and any other Transaction Documents (whether brought against a party hereto or its respective affiliates, directors, officers, shareholders, partners, members, employees or agents) shall be commenced exclusively in the state and federal courts sitting in the City of New York. Each party hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts sitting in the City of New York, Borough of Manhattan for the adjudication of any dispute hereunder or in connection herewith or with any transaction contemplated hereby or discussed herein (including with respect to the enforcement of any of the Transaction Documents), and hereby irrevocably waives, and agrees not to assert in any Action or Proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such Action or Proceeding is improper or is an inconvenient venue for such Proceeding. Each party hereby irrevocably waives personal service of process and consents to process being served in any such Action or Proceeding by mailing a copy thereof via registered or certified mail or overnight delivery (with evidence of delivery) to such party at the address in effect for notices to it under this Agreement and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any other manner permitted by law. If any party shall commence an Action or Proceeding to enforce any provisions of the Transaction Documents, then, in addition to the obligations of the Company under Section 4.7, the prevailing party in such Action or Proceeding shall be reimbursed by the non-prevailing party for its reasonable attorneys' fees and other costs and expenses incurred with the investigation, preparation and prosecution of such Action or Proceeding.

5.10 Survival. The representations and warranties contained herein shall survive the Closing and the delivery of the Securities.

5.11 Execution. This Agreement may be executed in two or more counterparts, all of which when taken together shall be considered one and the same agreement and shall become effective when counterparts have been signed by each party and delivered to each other party, it being understood that the parties need not sign the same counterpart. In the event that any signature is delivered by facsimile transmission or by e-mail delivery of a “.pdf” format data file, such signature shall create a valid and binding obligation of the party executing (or on whose behalf such signature is executed) with the same force and effect as if such facsimile or “.pdf” signature page were an original thereof.

5.12 Severability. If any term, provision, covenant or restriction of this Agreement is held by a court of competent jurisdiction to be invalid, illegal, void or unenforceable, the remainder of the terms, provisions, covenants and restrictions set forth herein shall remain in full force and effect and shall in no way be affected, impaired or invalidated, and the parties hereto shall use their commercially reasonable efforts to find and employ an alternative means to achieve the same or substantially the same result as that contemplated by such term, provision, covenant or restriction. It is hereby stipulated and declared to be the intention of the parties that they would have executed the remaining terms, provisions, covenants and restrictions without including any of such that may be hereafter declared invalid, illegal, void or unenforceable.

5.13 Rescission and Withdrawal Right. Notwithstanding anything to the contrary contained in (and without limiting any similar provisions of) any of the other Transaction Documents, whenever any Purchaser exercises a right, election, demand or option under a Transaction Document and the Company does not timely perform its related obligations within the periods therein provided, then such Purchaser may rescind or withdraw, in its sole discretion from time to time upon written notice to the Company, any relevant notice, demand or election in whole or in part without prejudice to its future actions and rights; provided, however, that, in the case of a rescission of an exercise of a Warrant, the applicable Purchaser shall be required to return any shares of Common Stock subject to any such rescinded exercise notice concurrently with the return to such Purchaser of the aggregate exercise price paid to the Company for such shares and the restoration of such Purchaser’s right to acquire such shares pursuant to such Purchaser’s Warrant (including, issuance of a replacement warrant certificate evidencing such restored right).

5.14 Replacement of Securities. If any certificate or instrument evidencing any Securities is mutilated, lost, stolen or destroyed, the Company shall issue or cause to be issued in exchange and substitution for and upon cancellation thereof (in the case of mutilation), or in lieu of and substitution therefor, a new certificate or instrument, but only upon receipt of evidence reasonably satisfactory to the Company of such loss, theft or destruction. The applicant for a new certificate or instrument under such circumstances shall also pay any reasonable third-party costs (including customary indemnity) associated with the issuance of such replacement Securities.

5.15 Remedies. In addition to being entitled to exercise all rights provided herein or granted by law, including recovery of damages, each of the Purchasers and the Company will be entitled to specific performance under the Transaction Documents. The parties agree that monetary damages may not be adequate compensation for any loss incurred by reason of any breach of obligations contained in the Transaction Documents and hereby agree to waive and not to assert in any Action for specific performance of any such obligation the defense that a remedy at law would be adequate.

5.16 Payment Set Aside. To the extent that the Company makes a payment or payments to any Purchaser pursuant to any Transaction Document or a Purchaser enforces or exercises its rights thereunder, and such payment or payments or the proceeds of such enforcement or exercise or any part thereof are subsequently invalidated, declared to be fraudulent or preferential, set aside, recovered from, disgorged by or are required to be refunded, repaid or otherwise restored to the Company, a trustee, receiver or any other Person under any law (including, without limitation, any bankruptcy law, state or federal law, common law or equitable cause of action), then to the extent of any such restoration the obligation or part thereof originally intended to be satisfied shall be revived and continued in full force and effect as if such payment had not been made or such enforcement or setoff had not occurred.

5.17 Independent Nature of Purchasers' Obligations and Rights. The obligations of each Purchaser under any Transaction Document are several and not joint with the obligations of any other Purchaser, and no Purchaser shall be responsible in any way for the performance or non-performance of the obligations of any other Purchaser under any Transaction Document. Nothing contained herein or in any other Transaction Document, and no action taken by any Purchaser pursuant hereto or thereto, shall be deemed to constitute the Purchasers as a partnership, an association, a joint venture or any other kind of entity, or create a presumption that the Purchasers are in any way acting in concert or as a group with respect to such obligations or the transactions contemplated by the Transaction Documents. Each Purchaser shall be entitled to independently protect and enforce its rights including, without limitation, the rights arising out of this Agreement or out of the other Transaction Documents, and it shall not be necessary for any other Purchaser to be joined as an additional party in any Proceeding for such purpose. Each Purchaser has been represented by its own separate legal counsel in its review and negotiation of the Transaction Documents. For reasons of administrative convenience only, each Purchaser and its respective counsel have chosen to communicate with the Company through PC. PC does not represent any of the Purchasers and only represents the Placement Agent. The Company has elected to provide all Purchasers with the same terms and Transaction Documents for the convenience of the Company and not because it was required or requested to do so by any of the Purchasers. It is expressly understood and agreed that each provision contained in this Agreement and in each other Transaction Document is between the Company and a Purchaser, solely, and not between the Company and the Purchasers collectively and not between and among the Purchasers.

5.18 Saturdays, Sundays, Holidays, etc. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall not be a Business Day, then such action may be taken or such right may be exercised on the next succeeding Business Day.

5.19 Construction. The parties agree that each of them and/or their respective counsel have reviewed and had an opportunity to revise the Transaction Documents and, therefore, the normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of the Transaction Documents or any amendments thereto. In addition, each and every reference to share prices and shares of Common Stock in any Transaction Document shall be subject to adjustment for reverse and forward stock splits, stock dividends, stock combinations and other similar transactions of the Common Stock that occur after the date of this Agreement.

5.20 **WAIVER OF JURY TRIAL. IN ANY ACTION, SUIT, OR PROCEEDING IN ANY JURISDICTION BROUGHT BY ANY PARTY AGAINST ANY OTHER PARTY, THE PARTIES EACH KNOWINGLY AND INTENTIONALLY, TO THE GREATEST EXTENT PERMITTED BY APPLICABLE LAW, HEREBY ABSOLUTELY, UNCONDITIONALLY, IRREVOCABLY AND EXPRESSLY WAIVES FOREVER TRIAL BY JURY.**

(Signature Pages Follow)

IN WITNESS WHEREOF, the parties hereto have caused this Securities Purchase Agreement to be duly executed by their respective authorized signatories as of the date first indicated above.

BIO-PATH HOLDINGS, INC.

Address for Notice:

By: _____
Name: Peter H. Nielsen
Title: President and Chief Executive Officer

4710 Bellaire Boulevard
Suite 210
Bellaire, Texas 77401
E-Mail: pnielsen@biopathholdings.com

With a copy to (which shall not constitute notice):

Winstead PC
600 Travis Street
Suite 5200
Houston, Texas 77002
Attention: William R. Rohrlach, II
Email: wrohrlach@winstead.com
Facsimile: (281) 681-5901

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SIGNATURE PAGE FOR PURCHASER FOLLOWS]

[PURCHASER SIGNATURE PAGES TO BPTH SECURITIES PURCHASE AGREEMENT

IN WITNESS WHEREOF, the undersigned have caused this Securities Purchase Agreement to be duly executed by their respective authorized signatories as of the date first indicated above.

Name of Purchaser: _____

Signature of Authorized Signatory of Purchaser: _____

Name of Authorized Signatory: _____

Title of Authorized Signatory: _____

Email Address of Authorized Signatory: _____

Address for Notice to Purchaser:

Address for Delivery of Securities to Purchaser (if not same as address for notice):

Subscription Amount: \$ _____

Shares: _____

Pre-Funded Warrant Shares: _____

Common Warrant Shares: _____

EIN Number: _____

Notwithstanding anything contained in this Agreement to the contrary, by checking this box (i) the obligations of the above-signed to purchase the securities set forth in this Agreement to be purchased from the Company by the above-signed, and the obligations of the Company to sell such securities to the above-signed, shall be unconditional and all conditions to Closing shall be disregarded, (ii) the Closing shall occur on the second (2nd) Trading Day following the date of this Agreement and (iii) any condition to Closing contemplated by this Agreement (but prior to being disregarded by clause (i) above) that required delivery by the Company or the above-signed of any agreement, instrument, certificate or the like or purchase price (as applicable) shall no longer be a condition and shall instead be an unconditional obligation of the Company or the above-signed (as applicable) to deliver such agreement, instrument, certificate or the like or purchase price (as applicable) to such other party on the Closing Date.



November 6, 2022

STRICTLY CONFIDENTIAL

Bio-Path Holdings, Inc.
4710 Bellaire Boulevard
Suite 210
Bellaire, TX 77401

Re: Engagement

Dear Mr. Nielsen:

This letter will confirm our understanding that Bio-Path Holdings, Inc. (the “Company”) has engaged ROTH Capital Partners, LLC (“ROTH”) to act as the Company’s exclusive placement agent in connection with the matters described below, subject to the terms and conditions of this letter agreement (this “Agreement”) and the Offering Agreement referred to below.

- Section 1. Engagement. For a period of 30 days from the date hereof (the “Engagement Period”), ROTH will serve as the exclusive placement agent for the Company with respect to any offering of equity or equity-linked securities (any such offering, the “Offering”).
- Section 2. Documentation. In the event that the Company and ROTH agree in their respective sole discretion to proceed with the Offering, both the Company and ROTH will rely on this Agreement or ROTH will prepare a placement agency agreement, as applicable, between ROTH and the Company covering the sale of securities, providing for the payment to ROTH of a cash commission equal to 7.0% of the total gross proceeds received by the Company from investors in the Offering (the “Offering Fee”) (excludes any amounts received by the Company in connection with the exercise of any warrants issued by the Company in the Offering). The Offering will provide for, and closing of the Offering will be conditioned upon, delivery to ROTH of customary legal opinions from Company counsel, including a traditional negative assurance letter, and a customary comfort letter from the Company’s independent public accountants.
- Section 3. Expenses. In addition to compensation payable pursuant to Section 2 above, and regardless of whether the Offering is consummated, the Company shall reimburse ROTH for reasonable out of pocket expenses incurred by ROTH in connection with this engagement, including reasonable fees and disbursements of its counsel, of up to \$50,000.
- Section 4. Term; Survival of Termination. The term of this Agreement shall commence on the date of this Agreement and shall automatically terminate upon the earlier to occur of (i) the end of the Engagement Period or (ii) the consummation of the Offering. The provisions of Section 3 through Section 10 (including Exhibit I attached hereto) shall survive termination of this Agreement.

ROTH CAPITAL PARTNERS, LLC
888 SAN CLEMENTE DRIVE, NEWPORT BEACH, CA 92660 | 800.678.9147 | www.roth.com | Member SIPC/FINRA

- Section 5. Indemnification. The Company agrees to indemnify ROTH and its affiliates as set forth in Exhibit I attached hereto.
- Section 6. Fee Tail. Omitted.
- Section 7. Other Business/ROFR. Omitted.
- Section 8. No Limitations. Nothing in this Agreement shall be construed to limit the ability of ROTH or its affiliates to (a) trade in the Company's or any other company's securities or publish research on the Company or any other company, subject to applicable law, or (b) pursue or engage in investment banking, financial advisory or other business relationships with entities that may be engaged in or contemplate engaging in, or acquiring or disposing of, businesses that are similar to or competitive with the business of the Company.
- Section 9. Miscellaneous. This Agreement shall be binding on and inure to the benefit of the Company, ROTH, each Indemnified Person (as defined in Exhibit I attached hereto) and their respective successors and assignees. This Agreement sets forth the entire understanding of the parties relating to the subject matter hereof and supersedes and cancels any prior communications, understandings, and agreements between the parties. This Agreement may not be amended or modified except in writing. This Agreement shall be governed by and construed in accordance with the laws of the State of New York, without regard to principles of conflicts of law. If any term, provision, covenant or restriction contained in this Agreement, including Exhibit I, is held by a court of competent jurisdiction or other authority to be invalid, void, unenforceable or against its regulatory policy, the remainder of the terms, provisions, covenants and restrictions contained in this Agreement shall remain in full force and effect and shall in no way be affected, impaired or invalidated. ROTH is an independent contractor, and any duties of ROTH arising out of its engagement hereunder shall be owed solely to the Company or, as applicable, to the Board of Directors (or a special committee thereof). Any advice provided to the Company or the Board of Directors (or a special committee thereof) is solely for the benefit of the Company and may not be used, reproduced, disseminated, quoted or referred to, without ROTH's prior written consent. If the Offering is consummated, ROTH may, at its expense, place an announcement in such newspapers and periodicals as ROTH may desire.
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Section 10. Arbitration. Any dispute, claim or controversy arising out of or relating to this Agreement or the breach, termination, enforcement, interpretation or validity thereof, including the determination of the scope or applicability of this agreement to arbitrate, shall be determined by arbitration in New York, NY, before one arbitrator. The arbitration shall be administered by JAMS pursuant to its Comprehensive Arbitration Rules & Procedures. Judgment on the Award may be entered in any court having jurisdiction. This clause shall not preclude parties from seeking provisional remedies in aid of arbitration from a court of appropriate jurisdiction.

The arbitrator may, in the Award, allocate all or part of the costs of the arbitration, including the fees of the arbitrator and the reasonable attorneys' fees of the prevailing party.

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If the foregoing terms meet with your approval, please indicate your acceptance by signing and returning the attached copy of this letter to us.

Very truly yours,

ROTH CAPITAL PARTNERS, LLC

By: /s/ James Antonopoulos

Name: James Antonopoulos

Its: Managing Director, Head of HC IB

Accepted as of the date first above written:

BIO-PATH HOLDINGS, INC.

By: /s/ Peter Nielsen

Name: Peter Nielsen

Its: President and Chief Executive Officer

EXHIBIT I

Indemnification Provisions

The Company agrees to indemnify and hold harmless ROTH and its affiliates (as defined in Rule 405 under the Securities Act of 1933, as amended) and their respective directors, officers, employees, agents and controlling persons (ROTH and each such person each being an “**Indemnified Party**”) from and against all losses, claims, damages and liabilities (or actions, including shareholder actions, in respect thereof), joint or several, to which such Indemnified Party may become subject under any applicable federal or state law, or otherwise, which are related to or result from the performance by ROTH of the services contemplated by or the engagement of ROTH pursuant to this Agreement and will promptly reimburse any Indemnified Party for all reasonable expenses (including reasonable counsel fees and expenses) as they are incurred in connection with the investigation of, preparation for or defense arising from any threatened or pending claim, whether or not such Indemnified Party is a party and whether or not such claim, action or proceeding is initiated or brought by the Company; provided, however, that the Company will not be liable to any Indemnified Party under the foregoing indemnification and reimbursement provisions (i) for any settlement by an Indemnified Party effected without its prior written consent (not to be unreasonably withheld); (ii) to the extent that any loss, claim, damage or liability is found in a final, non-appealable judgment by a court of competent jurisdiction to have resulted primarily from the Indemnified Party’s willful misconduct or gross negligence; or (iii) to the extent that any loss, claim, damage or liability arises from any information contained in any Offering documents provided to investors that was furnished to the Company by ROTH for inclusion in such Offering documents. The Company also agrees that no Indemnified Party shall have any liability (whether direct or indirect, in contract or tort or otherwise) to the Company or its security holders or creditors related to or arising out of the engagement of ROTH pursuant to, or the performance by ROTH of the services contemplated by, this Agreement except to the extent that any loss, claim, damage or liability is found in a final, non-appealable judgment by a court of competent jurisdiction to have resulted primarily from ROTH’s willful misconduct or gross negligence.

Promptly after receipt by an Indemnified Party of notice of any intention or threat to commence an action, suit or proceeding or notice of the commencement of any action, suit or proceeding, such Indemnified Party will, if a claim in respect thereof is to be made against the Company pursuant hereto, promptly notify the Company in writing of the same. Any failure or delay by an Indemnified Party to give the notice referred to in this paragraph shall not affect such Indemnified Party’s right to be indemnified hereunder, except to the extent that such failure or delay causes actual material harm to the Company, or materially prejudices its ability to defend such action, suit or proceeding on behalf of such Indemnified Party. In case any such action is brought against any Indemnified Party and such Indemnified Party notifies the Company of the commencement thereof, the Company may elect to assume the defense thereof, with counsel reasonably satisfactory to such Indemnified Party, and an Indemnified Party may employ counsel to participate in the defense of any such action provided, that the employment of such counsel shall be at the Indemnified Party’s own expense, unless (i) the employment of such counsel has been authorized in writing by the Company, (ii) the Indemnified Party has reasonably concluded (based upon advice of counsel to the Indemnified Party) that there are legal defenses available to the Indemnification Party that are not available to the Company, or that there exists a conflict or potential conflict of interest (based upon advice of counsel to the Indemnified Party) between the Indemnified Party and the Company that makes it impossible or inadvisable for counsel to the Company to conduct the defense of both parties (in which case the Company will not have the right to direct the defense of such action on behalf of the Indemnified Party), or (iii) the Company has not in fact employed counsel reasonably satisfactory to the Indemnified Party to assume the defense of such action within a reasonable time after receiving notice of the action, suit or proceeding, in each of which cases the reasonable fees, disbursements and other charges of such counsel will be at the expense of the Company; provided, further, that in no event shall the Company be required to pay fees and expenses for more than one firm of attorneys (and local counsel) representing Indemnified Parties.

If the indemnification provided for in this Agreement is for any reason held unenforceable by an Indemnified Party, the Company agrees to contribute to the losses, claims, damages and liabilities for which such indemnification is held unenforceable (i) in such proportion as is appropriate to reflect the relative benefits to the Company, on the one hand, and ROTH on the other hand, of the Offering as contemplated whether or not the Offering is consummated or, (ii) if (but only if) the allocation provided for in clause (i) is for any reason unenforceable, in such proportion as is appropriate to reflect not only the relative benefits referred to in clause (i) but also the relative fault of the Company, on the one hand and ROTH, on the other hand, as well as any other relevant equitable considerations. The Company agrees that for the purposes of this paragraph the relative benefits to the Company and ROTH of the Offering as contemplated shall be deemed to be in the same proportion that the total value received or contemplated to be received by the Company in connection with the Offering bear to the fees paid or to be paid to ROTH under this Agreement. Notwithstanding the foregoing, the Company expressly agrees that ROTH shall not be required to contribute any amount in excess of the amount by which fees paid to ROTH hereunder (excluding reimbursable expenses), exceeds the amount of any damages which ROTH has otherwise been required to pay.

The Company agrees that without ROTH's prior written consent, which shall not be unreasonably withheld, it will not settle, compromise or consent to the entry of any judgment in any pending or threatened claim, action or proceeding in respect of which indemnification could be sought under the indemnification provisions of this Agreement (whether or not ROTH or any other Indemnified Party is an actual or potential party to such claim, action or proceeding), unless such settlement, compromise or consent includes an unconditional release of each Indemnified Party from all liability arising out of such claim, action or proceeding.

In the event that an Indemnified Party is requested or required to appear as a witness in any action brought by or on behalf of or against the Company relating to this Agreement or the services provided by ROTH hereunder in which such Indemnified Party is not named as a defendant, the Company agrees to promptly reimburse ROTH on a monthly basis for all expenses incurred by it in connection with such Indemnified Party's appearing and preparing to appear as such a witness, including, without limitation, the reasonable fees and disbursements of its legal counsel.

If multiple claims are brought with respect to at least one of which indemnification is permitted under applicable law and provided for under this Agreement, the Company agrees that any judgment or arbitration award shall be conclusively deemed to be based on claims as to which indemnification is permitted and provided for, except to the extent the judgment or arbitration award expressly states that it, or any portion thereof, is based solely on a claim as to which indemnification is not available.

PLACEMENT AGENCY AGREEMENT

November 6, 2022

Roth Capital Partners, LLC
888 San Clemente Drive
Newport Beach, CA 92660

Ladies and Gentlemen:

Introduction. Subject to the terms and conditions herein (this "Agreement"), Bio-Path Holdings, Inc., a Delaware corporation (the "Company"), hereby agrees to sell up to an aggregate of \$2,000,000 of registered securities of the Company, consisting of 800,000 shares (the "Shares") of the Company's common stock, \$0.001 par value per share (the "Common Stock"), and common stock purchase warrants to purchase up to an aggregate of 800,000 shares of Common Stock (the "Warrants"), and the Shares issuable upon exercise thereof, the "Warrant Shares", and, together with the Shares, the "Securities") directly to various investors (each, an "Investor" and, collectively, the "Investors") through Roth Capital Partners, LLC, as placement agent (the "Placement Agent"). The documents executed and delivered by the Company and the Investors in connection with the Offering (as defined below), including, without limitation, a securities purchase agreement (the "Purchase Agreement"), shall be collectively referred to herein as the "Transaction Documents." The purchase price to the Investors for each Share is \$2.50, and the exercise price to the Investors for each share of Common Stock issuable upon exercise of the Warrants is \$2.85. The Placement Agent may retain other brokers or dealers to act as sub-agents or selected-dealers on its behalf in connection with the Offering.

The Company hereby confirms its agreement with the Placement Agent as follows:

Section 1. Agreement to Act as Placement Agent.

(a) On the basis of the representations, warranties and agreements of the Company herein contained, and subject to all the terms and conditions of this Agreement, the Placement Agent shall be the exclusive placement agent in connection with the offering and sale by the Company of the Securities pursuant to the Company's registration statement on Form S-3 (File No. 333-265282) (the "Registration Statement"), with the terms of such offering (the "Offering") to be subject to market conditions and negotiations between the Company, the Placement Agent and the prospective Investors. The Placement Agent will act on a reasonable best efforts basis and the Company agrees and acknowledges that there is no guarantee of the successful placement of the Securities, or any portion thereof, in the prospective Offering. Under no circumstances will the Placement Agent or any of its "Affiliates" (as defined below) be obligated to underwrite or purchase any of the Securities for its own account or otherwise provide any financing. The Placement Agent shall act solely as the Company's agent and not as principal. The Placement Agent shall have no authority to bind the Company with respect to any prospective offer to purchase the Securities and the Company shall have the sole right to accept offers to purchase the Securities and may reject any such offer, in whole or in part. Subject to the terms and conditions hereof, payment of the purchase price for, and delivery of, the Securities shall be made at one or more closings (each a "Closing" and the date on which each Closing occurs, a "Closing Date"). The Closing shall occur via "Delivery Versus Payment", i.e., on the Closing Date, the Company shall issue the Shares directly to the account designated by the Placement Agent and, upon receipt of such Shares, the Placement Agent shall electronically deliver such Shares to the applicable Investor and payment shall be made by the Placement Agent (or its clearing firm) by wire transfer to the Company. As compensation for services rendered, on each Closing Date, the Company shall pay to the Placement Agent the fees and expenses set forth below:

(i) A cash fee equal to 7.0% of the gross proceeds received by the Company from the sale of the Securities at the closing of the Offering (the “Closing”).

(ii) The Company also agrees to reimburse Placement Agent’s expenses (with supporting invoices/receipts) up to \$50,000.

(b) The term of the Placement Agent's exclusive engagement will be until the completion of the Offering (the “Exclusive Term”); provided, however, that a party hereto may terminate the engagement with respect to itself at any time upon 10 days written notice to the other parties. Notwithstanding anything to the contrary contained herein, the provisions concerning confidentiality, indemnification and contribution contained herein and the Company’s obligations contained in the indemnification provisions will survive any expiration or termination of this Agreement, and the Company’s obligation to pay fees actually earned and payable and to reimburse expenses actually incurred and reimbursable pursuant to Section 1 hereof and which are permitted to be reimbursed under FINRA Rule 5110(f)(2)(D)(i), will survive any expiration or termination of this Agreement. Nothing in this Agreement shall be construed to limit the ability of the Placement Agent or its Affiliates to pursue, investigate, analyze, invest in, or engage in investment banking, financial advisory or any other business relationship with Persons (as defined below) other than the Company. As used herein (i) “Persons” means an 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 and (ii) “Affiliate” means any Person that, directly or indirectly through one or more intermediaries, controls or is controlled by or is under common control with a Person as such terms are used in and construed under Rule 405 under the Securities Act of 1933, as amended (the “Securities Act”).

Section 2. Representations, Warranties and Covenants of the Company. The Company hereby represents, warrants and covenants to the Placement Agent as of the date hereof, and as of each Closing Date, as follows:

(a) Securities Law Filings. The Company has filed with the Securities and Exchange Commission (the “Commission”) the Registration Statement under the Securities Act, which was filed on May 27, 2022 and declared effective on June 14, 2022 for the registration of the Securities under the Securities Act. Following the determination of pricing among the Company and the prospective Investors introduced to the Company by Placement Agent, the Company will file with the Commission pursuant to Rules 430A and 424(b) under the Securities Act, and the rules and regulations (the “Rules and Regulations”) of the Commission promulgated thereunder, a final prospectus supplement relating to the placement of the Securities, their respective pricings and the plan of distribution thereof and will advise the Placement Agent of all further information (financial and other) with respect to the Company required to be set forth therein. Such registration statement, at any given time, including the exhibits thereto filed at such time, as amended at such time, is hereinafter called the “Registration Statement”; such prospectus in the form in which it appears in the Registration Statement at the time of effectiveness, together with any preliminary prospectus supplement relating to the Offering, is hereinafter called the “Base Prospectus”; the preliminary prospectus supplement in the form in which it was filed with the Commission pursuant to Rule 424(b) is hereinafter called the “Preliminary Prospectus Supplement”; and the final prospectus supplement, in the form in which it will be filed with the Commission pursuant to Rule 424(b) (including the Base Prospectus as it may be amended or supplemented) is hereinafter called the “Final Prospectus.” The Registration Statement at the time it originally became effective is hereinafter called the “Original Registration Statement.” Any reference in this Agreement to the Registration Statement, the Original Registration Statement, the Base Prospectus, the Preliminary Prospectus Supplement or the Final Prospectus shall be deemed to refer to and include the documents incorporated by reference therein (the “Incorporated Documents”), if any, which were or are filed under the Securities Exchange Act of 1934, as amended (the “Exchange Act”), at any given time, as the case may be; and any reference in this Agreement to the terms “amend,” “amendment” or “supplement” with respect to the Registration Statement, the Original Registration Statement, the Base Prospectus, the Preliminary Prospectus Supplement or the Final Prospectus shall be deemed to refer to and include the filing of any document under the Exchange Act after the date of this Agreement, or the issue date of the Base Prospectus, the Preliminary Prospectus Supplement or the Final Prospectus, as the case may be, deemed to be incorporated therein by reference. All references in this Agreement to financial statements and schedules and other information which is “contained,” “included,” “described,” “referenced,” “set forth” or “stated” in the Registration Statement, the Base Prospectus, the Preliminary Prospectus Supplement or the Final Prospectus (and all other references of like import) shall be deemed to mean and include all such financial statements and schedules and other information which is or is deemed to be incorporated by reference in the Registration Statement, the Base Prospectus, the Preliminary Prospectus Supplement or the Final Prospectus, as the case may be. As used in this paragraph and elsewhere in this Agreement, “Time of Sale Disclosure Package” means the Base Prospectus, any preliminary prospectus supplement, any subscription agreement between the Company and the Investors, and any issuer free writing prospectus as defined in Rule 433 of the Act (each, an “Issuer Free Writing Prospectus”), if any, that the parties hereto shall hereafter expressly agree in writing to treat as part of the Time of Sale Disclosure Package. The term “any Prospectus” shall mean, as the context requires, the Base Prospectus, the Final Prospectus, and any supplement to either thereof. The Company has not received any notice that the Commission has issued or intends to issue a stop order suspending the effectiveness of the Registration Statement or the use of the Base Prospectus or any Prospectus Supplement or intends to commence a proceeding for any such purpose.

(b) Assurances. The Original Registration Statement, as amended, (and any further documents to be filed with the Commission) contains all exhibits and schedules as required by the Securities Act. Each of the Registration Statement and any post-effective amendment thereto, at the time it became effective, complied in all material respects with the Securities Act and the applicable Rules and Regulations and did not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading. The Base Prospectus, and the Final Prospectus, each as of its respective date, comply or will comply in all material respects with the Securities Act and the applicable Rules and Regulations. Each of the Base Prospectus and the Final Prospectus, as amended or supplemented, did not and will not contain as of the date thereof any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading. The Incorporated Documents, when they were filed with the Commission, conformed in all material respects to the requirements of the Exchange Act and the applicable Rules and Regulations promulgated thereunder, and none of such documents, when they were filed with the Commission, contained any untrue statement of a material fact or omitted to state a material fact necessary to make the statements therein (with respect to Incorporated Documents incorporated by reference in the Base Prospectus or Final Prospectus), in light of the circumstances under which they were made not misleading. No post-effective amendment to the Registration Statement reflecting any facts or events arising after the date thereof which represent, individually or in the aggregate, a fundamental change in the information set forth therein is required to be filed with the Commission. Except for this Agreement and the Transaction Documents, there are no documents required to be filed with the Commission in connection with the transaction contemplated hereby that (x) have not been filed as required pursuant to the Securities Act or (y) will not be filed within the requisite time period. Except for this Agreement and the Transaction Documents, there are no contracts or other documents required to be described in the Base Prospectus or Final Prospectus, or to be filed as exhibits or schedules to the Registration Statement, which have not been described or filed as required.

(c) Offering Materials. Neither the Company nor any of its directors and officers has distributed and none of them will distribute, prior to each Closing Date, any offering material in connection with the offering and sale of the Securities other than the Time of Sale Disclosure Package.

(d) Subsidiaries. All of the direct and indirect subsidiaries of the Company (the “Subsidiaries”) are set forth in the Incorporated Documents. The Company owns, directly or indirectly, all of the capital stock or other equity interests of each Subsidiary free and clear of any liens, charges, security interests, encumbrances, rights of first refusal, preemptive rights or other restrictions (collectively, “Liens”), and all of the issued and outstanding shares of capital stock of each Subsidiary are validly issued and are fully paid, non-assessable and free of preemptive and similar rights to subscribe for or purchase securities.

(e) Organization and Qualification. The Company and each of the Subsidiaries is an entity duly incorporated or otherwise organized, validly existing and in good standing under the laws of the jurisdiction of its incorporation or organization, with the requisite power and authority to own and use its properties and assets and to carry on its business as currently conducted. Neither the Company nor any Subsidiary is in violation nor default of any of the provisions of its respective certificate or articles of incorporation, bylaws or other organizational or charter documents. Each of the Company and the Subsidiaries is duly qualified to conduct business and is in good standing as a foreign corporation or other entity in each jurisdiction in which the nature of the business conducted or property owned by it makes such qualification necessary, except where the failure to be so qualified or in good standing, as the case may be, could not have or reasonably be expected to result in: (i) a material adverse effect on the legality, validity or enforceability of this Agreement or any other agreement entered into between the Company and the Investors, (ii) a material adverse effect on the results of operations, assets, business, prospects or condition (financial or otherwise) of the Company and the Subsidiaries, taken as a whole, or (iii) a material adverse effect on the Company’s ability to perform in any material respect on a timely basis its obligations under this Agreement or the transactions contemplated under the Prospectus Supplement (any of (i), (ii) or (iii), a “Material Adverse Effect”) and no an action, claim, suit, investigation or proceeding (including, without limitation, an informal investigation or partial proceeding, such as a deposition), whether commenced or threatened (“Proceeding”) has been instituted in any such jurisdiction revoking, limiting or curtailing or seeking to revoke, limit or curtail such power and authority or qualification.

(f) Authorization; Enforcement. The Company has the requisite corporate power and authority to enter into and to consummate the transactions contemplated by this Agreement, the Transaction Documents and the Time of Sale Disclosure Package and otherwise to carry out its obligations hereunder and thereunder. The execution and delivery of each of this Agreement and the Transaction Documents by the Company and the consummation by it of the transactions contemplated hereby and thereby and under the Base Prospectus have been duly authorized by all necessary action on the part of the Company and no further action is required by the Company, the Company’s Board of Directors (the “Board of Directors”) or the Company’s stockholders in connection therewith other than in connection with the Required Approvals (as defined below). This Agreement has been duly executed by the Company and, when delivered in accordance with the terms hereof, will (assuming due authorization, execution and delivery by the Placement Agent) constitute the valid and binding obligation of the Company enforceable against the Company in accordance with its terms, except (i) as limited by general equitable principles and applicable bankruptcy, insolvency, reorganization, moratorium and other laws of general application affecting enforcement of creditors’ rights generally, (ii) as limited by laws relating to the availability of specific performance, injunctive relief or other equitable remedies and (iii) insofar as indemnification and contribution provisions may be limited by applicable law.

(g) No Conflicts. The execution, delivery and performance by the Company of this Agreement, the Transaction Documents and the transactions contemplated pursuant to the Time of Sale Disclosure Package, the issuance and sale of the Securities and the consummation by it of the transactions contemplated hereby and thereby to which it is a party do not and will not (i) conflict with or violate any provision of the Company's or any Subsidiary's certificate or articles of incorporation, bylaws or other organizational or charter documents, or (ii) conflict with, or constitute a default (or an event that with notice or lapse of time or both would become a default) under, result in the creation of any Lien upon any of the properties or assets of the Company or any Subsidiary, or give to others any rights of termination, amendment, acceleration or cancellation (with or without notice, lapse of time or both) of, any agreement, credit facility, debt or other instrument (evidencing a Company or Subsidiary debt or otherwise) or other understanding to which the Company or any Subsidiary is a party or by which any property or asset of the Company or any Subsidiary is bound or affected, or (iii) subject to the Required Approvals, conflict with or result in a violation of any law, rule, regulation, order, judgment, injunction, decree or other restriction of any court or governmental authority to which the Company or a Subsidiary is subject (including federal and state securities laws and regulations), or by which any property or asset of the Company or a Subsidiary is bound or affected; except in the case of each of clauses (ii) and (iii), such as could not have or reasonably be expected to result in a Material Adverse Effect.

(h) Filings, Consents and Approvals. The Company is not required to obtain any consent, waiver, authorization or order of, give any notice to, or make any filing or registration with, any court or other federal, state, local or other governmental authority or other Person in connection with the execution, delivery and performance by the Company of this Agreement and the transactions contemplated pursuant to the Base Prospectus, other than: (i) the filing with the Commission of the Final Prospectus, (ii) application(s) to the Nasdaq Stock Market (the "Trading Market") for the listing of the Shares and the Warrant Shares for trading thereon in the time and manner required thereby and (iii) such filings as are required to be made under applicable state securities laws (collectively, the "Required Approvals").

(i) Issuance of the Securities; Registration. The Securities are duly authorized and, when issued and paid for in accordance with the Final Prospectus, will be duly and validly issued, fully paid and nonassessable, free and clear of all Liens imposed by the Company. The Warrant Shares, when issued in accordance with the terms of the Warrants, will be validly issued, fully paid and nonassessable, free and clear of all Liens imposed by the Company. The Company has reserved from its duly authorized capital stock the maximum number of shares of Common Stock issuable pursuant to the Final Prospectus.

(j) Capitalization. The capitalization of the Company is as set forth in the Incorporated Documents. The Company has not issued any capital stock since its most recently filed periodic report under the Exchange Act, other than pursuant to the terms of the At The Market Offering Agreement with H.C. Wainwright & Co., LLC dated as of July 13, 2020, pursuant to the exercise of employee stock options under the Company's stock option plans, the issuance of shares of Common Stock to employees pursuant to the Company's employee stock purchase plans and pursuant to the conversion and/or exercise of securities of the Company or the Subsidiaries which would entitle the holder thereof to acquire at any time any Common Stock, including, without limitation, any debt, preferred stock, rights, options, warrants or other instrument that is at any time convertible into or exercisable or exchangeable for, or otherwise entitles the holder thereof to receive, Common Stock ("Common Stock Equivalents") outstanding as of the date of the most recently filed periodic report under the Exchange Act. No Person has any right of first refusal, preemptive right, right of participation, or any similar right to participate in the transactions contemplated by this Agreement and the transactions contemplated pursuant to the Base Prospectus. Except as a result of the purchase and sale of the Securities or as set forth in the Time of Sale Disclosure Package, there are no outstanding options, warrants, scrip rights to subscribe to, calls or commitments of any character whatsoever relating to, or securities, rights or obligations convertible into or exercisable or exchangeable for, or giving any Person any right to subscribe for or acquire, any shares of Common Stock or the capital stock of any Subsidiary, or contracts, commitments, understandings or arrangements by which the Company or any Subsidiary is or may become bound to issue additional shares of Common Stock or Common Stock Equivalents or capital stock of any Subsidiary. The issuance and sale of the Securities will not obligate the Company or any Subsidiary to issue shares of Common Stock or other securities to any Person (other than the Investors) and will not result in a right of any holder of Company securities to adjust the exercise, conversion, exchange or reset price under any of such securities. There are no outstanding securities or instruments of the Company or any Subsidiary that contain any redemption or similar provisions, and there are no contracts, commitments, understandings or arrangements by which the Company or any Subsidiary is or may become bound to redeem a security of the Company or such Subsidiary. The Company does not have any stock appreciation rights or "phantom stock" plans or agreements or any similar plan or agreement. All of the outstanding shares of capital stock of the Company are duly authorized. All of the outstanding shares of capital stock of the Company are validly issued, fully paid and nonassessable, have been issued in compliance with all federal and state securities laws, and none of such outstanding shares was issued in violation of any preemptive rights or similar rights to subscribe for or purchase securities. No further approval or authorization of any stockholder, the Board of Directors or others is required for the issuance and sale of the Securities. There are no stockholders agreements, voting agreements or other similar agreements with respect to the Company's capital stock to which the Company is a party or, to the knowledge of the Company, between or among any of the Company's stockholders.

(k) SEC Reports; Financial Statements. The Company has filed all reports, schedules, forms, statements and other documents required to be filed by the Company under the Securities Act and the Exchange Act, including pursuant to Section 13(a) or 15(d) thereof, for the two years preceding the date hereof (or such shorter period as the Company was required by law or regulation to file such material) (the foregoing materials, including the exhibits thereto and documents incorporated by reference therein, together with the Prospectus and any prospectus supplement, being collectively referred to herein as the “SEC Reports”) on a timely basis or has received a valid extension of such time of filing and has filed any such SEC Reports prior to the expiration of any such extension. As of their respective dates, the SEC Reports complied in all material respects with the requirements of the Securities Act and the Exchange Act, as applicable, and none of the SEC Reports, when filed, contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading. The financial statements of the Company included in the SEC Reports comply in all material respects with applicable accounting requirements and the rules and regulations of the Commission with respect thereto as in effect at the time of filing. Such financial statements have been prepared in accordance with United States generally accepted accounting principles applied on a consistent basis during the periods involved (“GAAP”), except as may be otherwise specified in such financial statements or the notes thereto and except that unaudited financial statements may not contain all footnotes required by GAAP, and fairly present in all material respects the financial position of the Company and its consolidated Subsidiaries as of and for the dates thereof and the results of operations and cash flows for the periods then ended, subject, in the case of unaudited statements, to normal, immaterial, year-end audit adjustments.

(l) Material Changes; Undisclosed Events, Liabilities or Developments. Since the date of the latest audited financial statements included within the SEC Reports, except as specifically disclosed in a subsequent SEC Report filed prior to the date hereof and incorporated into the Base Prospectus, (i) there has been no event, occurrence or development that has had or that could reasonably be expected to result in a Material Adverse Effect, (ii) the Company has not incurred any liabilities (contingent or otherwise) other than (A) trade payables and accrued expenses incurred in the ordinary course of business consistent with past practice and (B) liabilities not required to be reflected in the Company’s financial statements pursuant to GAAP or disclosed in filings made with the Commission, (iii) the Company has not altered its method of accounting, (iv) the Company has not declared or made any dividend or distribution of cash or other property to its stockholders or purchased, redeemed or made any agreements to purchase or redeem any shares of its capital stock and (v) the Company has not issued any equity securities to any officer, director or Affiliate, except pursuant to existing Company stock option plans. The Company does not have pending before the Commission any request for confidential treatment of information. Except for the issuance of the Securities contemplated by the Base Prospectus or disclosed in the Base Prospectus, no event, liability, fact, circumstance, occurrence or development has occurred or exists or is reasonably expected to occur or exist with respect to the Company or its Subsidiaries or their respective businesses, prospects, properties, operations, assets or financial condition that would be required to be disclosed by the Company under applicable securities laws at the time this representation is made or deemed made that has not been publicly disclosed at least 1 Trading Day prior to the date that this representation is made.

(m) Litigation. There is no action, suit, inquiry, notice of violation, proceeding or investigation pending or, to the knowledge of the Company, threatened against or affecting the Company, any Subsidiary or any of their respective properties before or by any court, arbitrator, governmental or administrative agency or regulatory authority (federal, state, county, local or foreign) (collectively, an “Action”) which (i) adversely affects or challenges the legality, validity or enforceability of any of this Agreement and the transactions contemplated pursuant to the Time of Sale Disclosure Package or the Securities or (ii) could, if there were an unfavorable decision, have or reasonably be expected to result in a Material Adverse Effect. Neither the Company nor any Subsidiary, nor any director or officer thereof, is or has been the subject of any Action involving a claim of violation of or liability under federal or state securities laws or a claim of breach of fiduciary duty. There has not been, and to the knowledge of the Company, there is not pending or contemplated, any investigation by the Commission involving the Company or any current or former director or officer of the Company. The Commission has not issued any stop order or other order suspending the effectiveness of any registration statement filed by the Company or any Subsidiary under the Exchange Act or the Securities Act.

(n) Labor Relations. No material labor dispute exists or, to the knowledge of the Company, is imminent with respect to any of the employees of the Company, which could reasonably be expected to result in a Material Adverse Effect. None of the Company's or its Subsidiaries' employees is a member of a union that relates to such employee's relationship with the Company or such Subsidiary, and neither the Company nor any of its Subsidiaries is a party to a collective bargaining agreement, and the Company and its Subsidiaries believe that their relationships with their employees are good. No executive officer of the Company or any Subsidiary, to the knowledge of the Company, is, or is now expected to be, in violation of any material term of any employment contract, confidentiality, disclosure or proprietary information agreement or non-competition agreement, or any other contract or agreement or any restrictive covenant in favor of any third party, and the continued employment of each such executive officer does not subject the Company or any of its Subsidiaries to any liability with respect to any of the foregoing matters. The Company and its Subsidiaries are in compliance with all U.S. federal, state, local and foreign laws and regulations relating to employment and employment practices, terms and conditions of employment and wages and hours, except where the failure to be in compliance could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

(o) Compliance. Neither the Company nor any Subsidiary: (i) is in default under or in violation of (and no event has occurred that has not been waived that, with notice or lapse of time or both, would result in a default by the Company or any Subsidiary under), nor has the Company or any Subsidiary received notice of a claim that it is in default under or that it is in violation of, any indenture, loan or credit agreement or any other agreement or instrument to which it is a party or by which it or any of its properties is bound (whether or not such default or violation has been waived), (ii) is in violation of any judgment, decree or order of any court, arbitrator or governmental authority or (iii) is or has been in violation of any statute, rule, ordinance or regulation of any governmental authority, including without limitation all foreign, federal, state and local laws relating to taxes, environmental protection, occupational health and safety, product quality and safety and employment and labor matters, except in each case as could not have or reasonably be expected to result in a Material Adverse Effect.

(p) Environmental Laws. The Company and its Subsidiaries (i) are in compliance with all federal, state, local and foreign laws relating to pollution or protection of human health or the environment (including ambient air, surface water, groundwater, land surface or subsurface strata), including laws relating to emissions, discharges, releases or threatened releases of chemicals, pollutants, contaminants, or toxic or hazardous substances or wastes (collectively, "Hazardous Materials") into the environment, or otherwise relating to the manufacture, processing, distribution, use, treatment, storage, disposal, transport or handling of Hazardous Materials, as well as all authorizations, codes, decrees, demands, or demand letters, injunctions, judgments, licenses, notices or notice letters, orders, permits, plans or regulations, issued, entered, promulgated or approved thereunder ("Environmental Laws"); (ii) have received all permits licenses or other approvals required of them under applicable Environmental Laws to conduct their respective businesses; and (iii) are in compliance with all terms and conditions of any such permit, license or approval where in each clause (i), (ii) and (iii), the failure to so comply could be reasonably expected to have, individually or in the aggregate, a Material Adverse Effect

(q) Regulatory Permits. The Company and the Subsidiaries possess all certificates, authorizations and permits issued by the appropriate federal, state, local or foreign regulatory authorities necessary to conduct their respective businesses as described in the Time of Sale Disclosure Package, except where the failure to possess such permits could not reasonably be expected to result in a Material Adverse Effect ("Material Permits"), and neither the Company nor any Subsidiary has received any notice of proceedings relating to the revocation or modification of any Material Permit.

(r) Title to Assets. The Company and the Subsidiaries have good and marketable title in fee simple to all real property owned by them and good and marketable title in all personal property owned by them that is material to the business of the Company and the Subsidiaries, in each case free and clear of all Liens, except for Liens as do not materially affect the value of such property and do not materially interfere with the use made and proposed to be made of such property by the Company and the Subsidiaries and Liens for the payment of federal, state or other taxes, for which appropriate reserves have been made therefor in accordance with GAAP and, the payment of which is neither delinquent nor subject to penalties. Any real property and facilities held under lease by the Company and the Subsidiaries are held by them under valid, subsisting and enforceable leases with which the Company and the Subsidiaries are in compliance.

(s) Patents and Trademarks. The Company and the Subsidiaries have, or have rights to use, all patents, patent applications, trademarks, trademark applications, service marks, trade names, trade secrets, inventions, copyrights, licenses and other intellectual property rights and similar rights necessary or material for use in connection with their respective businesses as described in the SEC Reports and which the failure to so have could have a Material Adverse Effect (collectively, the "Intellectual Property Rights"). None of, and neither the Company nor any Subsidiary has received a notice (written or otherwise) that any of, the Intellectual Property Rights has expired, terminated or been abandoned, or is expected to expire or terminate or be abandoned, within two (2) years from the date of this Agreement. Neither the Company nor any Subsidiary has received, since the date of the latest audited financial statements included within the SEC Reports, a notice (written or otherwise) of a claim or otherwise has any knowledge that the Intellectual Property Rights violate or infringe upon the rights of any Person, except as would not have a Material Adverse Effect. To the knowledge of the Company, all such Intellectual Property Rights are enforceable and there is no existing infringement by another Person of any of the Intellectual Property Rights. The Company and its Subsidiaries have taken reasonable security measures to protect the secrecy, confidentiality and value of all of their intellectual properties, except where failure to do so could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

(t) Insurance. 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 the Company and the Subsidiaries are engaged, including, but not limited to, directors and officers insurance coverage. Neither the Company nor any Subsidiary has any reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business without a significant increase in cost.

(u) Transactions With Affiliates and Employees. Except as set forth in the Time of Sale Disclosure Package, none of the officers or directors of the Company or any Subsidiary and, to the knowledge of the Company, none of the employees of the Company or any Subsidiary is presently a party to any transaction with the Company or any Subsidiary (other than for services as employees, officers and directors), including any contract, agreement or other arrangement providing for the furnishing of services to or by, providing for rental of real or personal property to or from, providing for the borrowing of money from or lending of money to or otherwise requiring payments to or from any officer, director or such employee or, to the knowledge of the Company, any entity in which any officer, director, or any such employee has a substantial interest or is an officer, director, trustee, stockholder, member or partner, in each case in excess of \$120,000 other than for: (i) payment of salary or consulting fees for services rendered, (ii) reimbursement for expenses incurred on behalf of the Company and (iii) other employee benefits, including stock option agreements under any stock option plan of the Company.

(v) Sarbanes-Oxley; Internal Accounting Controls. The Company and the Subsidiaries are in compliance with any and all applicable requirements of the Sarbanes-Oxley Act of 2002 that are effective as of the date hereof, and any and all applicable rules and regulations promulgated by the Commission thereunder that are effective as of the date hereof and as of the Closing Date. The Company and the Subsidiaries maintain a system of internal accounting controls sufficient to provide reasonable assurance that: (i) transactions are executed in accordance with management's general or specific authorizations, (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP and to maintain asset accountability, (iii) access to assets is permitted only in accordance with management's general or specific authorization, and (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences. The Company and the Subsidiaries have established disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the Company and the Subsidiaries and designed such disclosure controls and procedures to ensure that information required to be disclosed by the Company in the reports it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Commission's rules and forms. The Company's certifying officers have evaluated the effectiveness of the Company's disclosure controls and procedures of the Company and the Subsidiaries as of the end of the period covered by the Company's most recently filed periodic report under the Exchange Act (such date, the "Evaluation Date"). The Company presented in its most recently filed periodic report under the Exchange Act the conclusions of the certifying officers about the effectiveness of the disclosure controls and procedures based on their evaluations as of the Evaluation Date. Since the Evaluation Date, there have been no changes in the internal control over financial reporting (as such term is defined in the Exchange Act) of the Company and its Subsidiaries that have materially affected, or is reasonably likely to materially affect, the internal control over financial reporting of the Company and its Subsidiaries.

(w) Certain Fees. Except as set forth in the Base Prospectus, no brokerage or finder's fees or commissions are or will be payable by the Company to any broker, financial advisor or consultant, finder, placement agent, investment banker, bank or other Person with respect to the transactions contemplated by this Agreement and the transactions contemplated pursuant to the Base Prospectus. The Investors shall have no obligation with respect to any fees or with respect to any claims made by or on behalf of other Persons for fees of a type contemplated in this Section that may be due in connection with the transactions contemplated by this Agreement and the transactions contemplated pursuant to the Base Prospectus.

(x) Investment Company. The Company is not, and is not an Affiliate of, and immediately after receipt of payment for the Securities, will not be or be an Affiliate of, an "investment company" within the meaning of the Investment Company Act of 1940, as amended. The Company shall conduct its business in a manner so that it will not become an "investment company" subject to registration under the Investment Company Act of 1940, as amended.

(y) Registration Rights. No Person has any right to cause the Company or any Subsidiary to effect the registration under the Securities Act of any securities of the Company or any Subsidiary.

(z) Listing and Maintenance Requirements. The Common Stock is registered pursuant to Section 12(b) or 12(g) of the Exchange Act, and the Company has taken no action designed to, or which to its knowledge is likely to have the effect of, terminating the registration of the Common Stock under the Exchange Act nor has the Company received any notification that the Commission is contemplating terminating such registration. Except as disclosed in the Time of Sale Disclosure Package, the Company has not, in the 12 months preceding the date hereof, received notice from any Trading Market on which the Common Stock is or has been listed or quoted to the effect that the Company is not in compliance with the listing or maintenance requirements of such Trading Market. Except as disclosed in the Time of Sale Disclosure Package, the Company is, and has no reason to believe that it will not in the foreseeable future continue to be, in compliance with all such listing and maintenance requirements. The Common Stock is currently eligible for electronic transfer through the Depository Trust Company or another established clearing corporation and the Company is current in payment of the fees to the Depository Trust Company (or such other established clearing corporation) in connection with such electronic transfer.

(aa) Application of Takeover Protections. The Company and the Board of Directors have taken all necessary action, if any, in order to render inapplicable any control share acquisition, business combination, poison pill (including any distribution under a rights agreement) or other similar anti-takeover provision under the Company's certificate of incorporation (or similar charter documents) or the laws of its state of incorporation that is or could become applicable to the Investors as a result of the Investors and the Company fulfilling their obligations or exercising their rights under this Agreement and the transactions contemplated pursuant to the Prospectus Supplement, including without limitation as a result of the Company's issuance of the Securities and the Investors' ownership of the Securities.

(bb) Disclosure. Except with respect to the material terms and conditions of the transactions contemplated by this Agreement and the transactions contemplated pursuant to the Base Prospectus, the Company confirms that neither it nor any other Person acting on its behalf has provided any of the Investors or their agents or counsel with any information that it believes constitutes or might constitute material, non-public information which is not otherwise disclosed in the Time of Sale Disclosure Package. The Company understands and confirms that the Investors will rely on the foregoing representation in effecting transactions in securities of the Company. All of the disclosure furnished by or on behalf of the Company to the Investors regarding the Company and, its Subsidiaries, their respective businesses and the transactions contemplated hereby, including the Time of Sale Disclosure Package, is true and correct and does not contain any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements made therein, in light of the circumstances under which they were made, not misleading. The press releases disseminated by the Company during the twelve months preceding the date of this Agreement taken as a whole do not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made and when made, not misleading.

(cc) No Integrated Offering. Neither the Company, nor any of its Affiliates, nor any Person acting on its or their behalf has, directly or indirectly, made any offers or sales of any security or solicited any offers to buy any security, under circumstances that would cause this offering of the Securities to be integrated with prior offerings by the Company for purposes of any applicable shareholder approval provisions of any Trading Market on which any of the securities of the Company are listed or designated.

(dd) Solvency. Based on the consolidated financial condition of the Company as of each Closing Date, after giving effect to the receipt by the Company of the proceeds from the sale of the Securities hereunder, (i) the fair saleable value of the Company's assets exceeds the amount that will be required to be paid on or in respect of the Company's existing debts and other liabilities (including known contingent liabilities) as they mature, (ii) the Company's assets do not constitute unreasonably small capital to carry on its business as now conducted and as proposed to be conducted including its capital needs taking into account the particular capital requirements of the business conducted by the Company, consolidated and projected capital requirements and capital availability thereof, and (iii) the current cash flow of the Company, together with the proceeds the Company would receive, were it to liquidate all of its assets, after taking into account all anticipated uses of the cash, would be sufficient to pay all amounts on or in respect of its liabilities when such amounts are required to be paid. The Company does not intend to incur debts beyond its ability to pay such debts as they mature (taking into account the timing and amounts of cash to be payable on or in respect of its debt). The Company has no knowledge of any facts or circumstances which lead it to believe that it will file for reorganization or liquidation under the bankruptcy or reorganization laws of any jurisdiction within one year from each Closing Date. The Time of Sale Disclosure Package incorporates as of the date hereof all outstanding secured and unsecured Indebtedness of the Company or any Subsidiary, or for which the Company or any Subsidiary has commitments. For the purposes of this Agreement, "Indebtedness" means (x) any liabilities for borrowed money or amounts owed in excess of \$50,000 (other than trade accounts payable incurred in the ordinary course of business), (y) all guaranties, endorsements and other contingent obligations in respect of indebtedness of others, whether or not the same are or should be reflected in the Company's consolidated balance sheet (or the notes thereto), except guaranties by endorsement of negotiable instruments for deposit or collection or similar transactions in the ordinary course of business; and (z) the present value of any lease payments in excess of \$50,000 due under leases required to be capitalized in accordance with GAAP. Neither the Company nor any Subsidiary is in default with respect to any Indebtedness.

(ee) Tax Status. Except for matters that would not, individually or in the aggregate, have or reasonably be expected to result in a Material Adverse Effect, the Company and its Subsidiaries (i) has made or filed all United States federal, state and local income and all foreign income and franchise tax returns, reports and declarations required by any jurisdiction to which it is subject, (ii) has paid all taxes and other governmental assessments and charges that are material in amount, shown or determined to be due on such returns, reports and declarations and (iii) has set aside on its books provision reasonably adequate for the payment of all material taxes for periods subsequent to the periods to which such returns, reports or declarations apply. There are no unpaid taxes in any material amount claimed to be due by the taxing authority of any jurisdiction, and the officers of the Company or of any Subsidiary know of no basis for any such claim.

(ff) Foreign Corrupt Practices. Neither the Company nor any Subsidiary, nor to the knowledge of the Company or any Subsidiary, any agent or other person acting on behalf of the Company or any Subsidiary, has (i) directly or indirectly, used any funds for unlawful contributions, gifts, entertainment or other unlawful expenses related to foreign or domestic political activity, (ii) made any unlawful payment to foreign or domestic government officials or employees or to any foreign or domestic political parties or campaigns from corporate funds, (iii) failed to disclose fully any contribution made by the Company or any Subsidiary (or made by any person acting on its behalf of which the Company is aware) which is in violation of law, or (iv) violated in any material respect any provision of the Foreign Corrupt Practices Act of 1977, as amended.

(gg) FDA. As to each product subject to the jurisdiction of the U.S. Food and Drug Administration (“FDA”) under the Federal Food, Drug and Cosmetic Act, as amended, and the regulations thereunder (“FDCA”) that is manufactured, packaged, labeled, tested, distributed, sold, and/or marketed by the Company or any of its Subsidiaries (each such product, a “Pharmaceutical Product”), such Pharmaceutical Product is being manufactured, packaged, labeled, tested, distributed, sold and/or marketed by the Company in compliance with all applicable requirements under FDCA and similar laws, rules and regulations relating to registration, investigational use, premarket clearance, licensure, or application approval, good manufacturing practices, good laboratory practices, good clinical practices, product listing, quotas, labeling, advertising, record keeping and filing of reports, except where the failure to be in compliance could not reasonably be expected to have a Material Adverse Effect. There is no pending, completed or, to the Company’s knowledge, threatened, action (including any lawsuit, arbitration, or legal or administrative or regulatory proceeding, charge, complaint, or investigation) against the Company or any of its Subsidiaries, and none of the Company or any of its Subsidiaries has received any notice, warning letter or other communication from the FDA or any other governmental entity, which (i) contests the premarket clearance, licensure, registration, or approval of, the uses of, the distribution of, the manufacturing or packaging of, the testing of, the sale of, or the labeling and promotion of any Pharmaceutical Product, (ii) withdraws its approval of, requests the recall, suspension, or seizure of, or withdraws or orders the withdrawal of advertising or sales promotional materials relating to, any Pharmaceutical Product, (iii) imposes a clinical hold on any clinical investigation by the Company or any of its Subsidiaries, (iv) enjoins production at any facility of the Company or any of its Subsidiaries, (v) enters or proposes to enter into a consent decree of permanent injunction with the Company or any of its Subsidiaries, or (vi) otherwise alleges any violation of any laws, rules or regulations by the Company or any of its Subsidiaries, and which, either individually or in the aggregate, could reasonably be expected to have a Material Adverse Effect. The properties, business and operations of the Company have been and are being conducted in all material respects in accordance with all applicable laws, rules and regulations of the FDA. The Company has not been informed by the FDA that the FDA will prohibit the marketing, sale, license or use in the United States of any product proposed to be developed, produced or marketed by the Company nor has the FDA expressed any concern as to approving or clearing for marketing any product being developed or proposed to be developed by the Company.

(hh) Stock Option Plans. Each stock option granted by the Company under the Company’s stock option plan was granted (i) in accordance with the terms of the Company’s stock option plan and (ii) with an exercise price at least equal to the fair market value of the Common Stock on the date such stock option would be considered granted under GAAP and applicable law. No stock option granted under the Company’s stock option plan has been backdated. The Company has not knowingly granted, and there is no and has been no Company policy or practice to knowingly grant, stock options prior to, or otherwise knowingly coordinate the grant of stock options with, the release or other public announcement of material information regarding the Company or its Subsidiaries or their financial results or prospects.

(ii) Accountants. The Company’s registered independent accounting firm is set forth in the Incorporated Documents. To the knowledge and belief of the Company, such accounting firm (i) is a registered public accounting firm as required by the Exchange Act and (ii) shall express its opinion with respect to the financial statements to be included in the Company’s Annual Report for the fiscal year ended December 31, 2022.

(jj) Regulation M Compliance. The Company has not, and to its knowledge no one acting on its behalf has, (i) taken, directly or indirectly, any action designed to cause or to result in the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of any of the Securities, (ii) sold, bid for, purchased, or, paid any compensation for soliciting purchases of, any of the Securities, or (iii) paid or agreed to pay to any Person any compensation for soliciting another to purchase any other securities of the Company, other than, in the case of clauses (ii) and (iii), compensation paid to the Company's placement agent in connection with the placement of the Securities.

(kk) Office of Foreign Assets Control. Neither the Company nor any Subsidiary, to the Company's knowledge, any director, officer, agent, employee or affiliate of the Company or any Subsidiary is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Treasury Department ("OFAC").

(ll) U.S. Real Property Holding Corporation. The Company is not and has never been a U.S. real property holding corporation within the meaning of Section 897 of the Internal Revenue Code of 1986, as amended, and the Company shall so certify upon Investor's request.

(mm) Bank Holding Company Act. Neither the Company nor any of its Subsidiaries or Affiliates is subject to the Bank Holding Company Act of 1956, as amended (the "BHCA") and to regulation by the Board of Governors of the Federal Reserve System (the "Federal Reserve"). Neither the Company nor any of its Subsidiaries or Affiliates owns or controls, directly or indirectly, five percent (5%) or more of the outstanding shares of any class of voting securities or twenty-five percent or more of the total equity of a bank or any entity that is subject to the BHCA and to regulation by the Federal Reserve. Neither the Company nor any of its Subsidiaries or Affiliates exercises a controlling influence over the management or policies of a bank or any entity that is subject to the BHCA and to regulation by the Federal Reserve.

(nn) Money Laundering. The operations of the Company and its Subsidiaries are and have been conducted at all times in compliance with applicable financial record-keeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, applicable money laundering statutes and applicable rules and regulations thereunder (collectively, the "Money Laundering Laws"), and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company with respect to the Money Laundering Laws is pending or, to the knowledge of the Company, threatened.

(oo) Certificates. Any certificate signed by an officer of the Company and delivered to the Placement Agent or to counsel for the Placement Agent shall be deemed to be a representation and warranty by the Company to the Placement Agent as to the matters set forth therein.

(pp) Reliance. The Company acknowledges that the Placement Agent will rely upon the accuracy and truthfulness of the foregoing representations and warranties and hereby consents to such reliance.

(qq) Forward-Looking Statements. No forward-looking statements (within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act) contained in the Time of Sale Disclosure Package has been made or reaffirmed without a reasonable basis or has been disclosed other than in good faith.

(rr) Statistical or Market-Related Data. Any statistical, industry-related and market-related data included or incorporated by reference in the Time of Sale Disclosure Package, are based on or derived from sources that the Company reasonably and in good faith believes to be reliable and accurate, and such data agree with the sources from which they are derived.

(ss) FINRA Affiliations. There are no affiliations with any FINRA member firm among the Company's officers, directors or, to the knowledge of the Company, any five percent (5%) or greater stockholder of the Company.

Section 3. Delivery and Payment. Each Closing shall occur at the offices of Pryor Cashman LLP, 7 Times Square, New York, New York 10036 ("Placement Agent Counsel") (or at such other place as shall be agreed upon by the Placement Agent and the Company). Subject to the terms and conditions hereof, at each Closing payment of the purchase price for the Securities sold on such Closing Date shall be made by Federal Funds wire transfer, against delivery of such Securities, and such Securities shall be registered in such name or names and shall be in such denominations, as the Placement Agent may request at least one business day before the time of purchase (as defined below).

Deliveries of the documents with respect to the purchase of the Securities, if any, shall be made at the offices of Placement Agent Counsel. All actions taken at a Closing shall be deemed to have occurred simultaneously.

Section 4. Covenants and Agreements of the Company. The Company further covenants and agrees with the Placement Agent as follows:

(a) Registration Statement Matters. The Company will advise the Placement Agent promptly after it receives notice thereof of the time when any amendment to the Registration Statement has been filed or becomes effective or any supplement to the Base Prospectus or the Final Prospectus has been filed with respect to the Offering and will furnish the Placement Agent with copies thereof. The Company will file promptly all reports and any definitive proxy or information statements required to be filed by the Company with the Commission pursuant to Section 13(a), 14 or 15(d) of the Exchange Act subsequent to the date of any Prospectus and for so long as the delivery of a prospectus is required in connection with the Offering. The Company will advise the Placement Agent, promptly after it receives notice thereof (i) of any request by the Commission to amend the Registration Statement or to amend or supplement any Prospectus or for additional information, and (ii) of the issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement or any post-effective amendment thereto or any order directed at any Incorporated Document, if any, or any amendment or supplement thereto or any order preventing or suspending the use of the Base Prospectus or the Final Prospectus or any prospectus supplement or any amendment or supplement thereto or any post-effective amendment to the Registration Statement, of the suspension of the qualification of the Securities for offering or sale in any jurisdiction, of the institution or threatened institution of any proceeding for any such purpose, or of any request by the Commission for the amending or supplementing of the Registration Statement or a Prospectus or for additional information. The Company shall use its best efforts to prevent the issuance of any such stop order or prevention or suspension of such use. If the Commission shall enter any such stop order or order or notice of prevention or suspension at any time, the Company will use its best efforts to obtain the lifting of such order at the earliest possible moment, or will file a new registration statement and use its best efforts to have such new registration statement declared effective as soon as practicable. Additionally, the Company agrees that it shall comply with the provisions of Rules 424(b), 430A, 430B and 430C, as applicable, under the Securities Act, including with respect to the timely filing of documents thereunder, and will use its reasonable efforts to confirm that any filings made by the Company under such Rule 424(b) are received in a timely manner by the Commission.

(b) Blue Sky Compliance. The Company will cooperate with the Placement Agent and the Investors in endeavoring to qualify the Securities for sale under the securities laws of such jurisdictions (United States and foreign) as the Placement Agent and the Investors may reasonably request and will make such applications, file such documents, and furnish such information as may be reasonably required for that purpose, provided the Company shall not be required to qualify as a foreign corporation or to file a general consent to service of process in any jurisdiction where it is not now so qualified or required to file such a consent, and provided further that the Company shall not be required to produce any new disclosure document. The Company will, from time to time, prepare and file such statements, reports and other documents as are or may be required to continue such qualifications in effect for so long a period as the Placement Agent may reasonably request for distribution of the Securities. The Company will advise the Placement Agent promptly of the suspension of the qualification or registration of (or any such exemption relating to) the Securities for offering, sale or trading in any jurisdiction or any initiation or threat of any proceeding for any such purpose, and in the event of the issuance of any order suspending such qualification, registration or exemption, the Company shall use its best efforts to obtain the withdrawal thereof at the earliest possible moment.

(c) Amendments and Supplements to a Prospectus and Other Matters. The Company will comply with the Securities Act and the Exchange Act, and the rules and regulations of the Commission thereunder, so as to permit the completion of the distribution of the Securities as contemplated in this Agreement, the Incorporated Documents and any Prospectus. If during the period in which a prospectus is required by law to be delivered in connection with the distribution of Securities contemplated by the Incorporated Documents or any Prospectus (the "Prospectus Delivery Period"), any event shall occur as a result of which, in the judgment of the Company or in the opinion of the Placement Agent or counsel for the Placement Agent, it becomes necessary to amend or supplement the Incorporated Documents or any Prospectus in order to make the statements therein, in light of the circumstances under which they were made, as the case may be, not misleading, or if it is necessary at any time to amend or supplement the Incorporated Documents or any Prospectus or to file under the Exchange Act any Incorporated Document to comply with any law, the Company will promptly prepare and file with the Commission, and furnish at its own expense to the Placement Agent and to dealers, an appropriate amendment to the Registration Statement or supplement to the Registration Statement, the Incorporated Documents or any Prospectus that is necessary in order to make the statements in the Incorporated Documents and any Prospectus as so amended or supplemented, in light of the circumstances under which they were made, as the case may be, not misleading, or so that the Registration Statement, the Incorporated Documents or any Prospectus, as so amended or supplemented, will comply with law. Before amending the Registration Statement or supplementing the Incorporated Documents or any Prospectus in connection with the Offering, the Company will furnish the Placement Agent with a copy of such proposed amendment or supplement and will not file any such amendment or supplement to which the Placement Agent reasonably objects.

(d) Copies of any Amendments and Supplements to a Prospectus. The Company will furnish the Placement Agent, without charge, during the period beginning on the date hereof and ending on the later of the last Closing Date of the Offering, as many copies of any Prospectus or prospectus supplement and any amendments and supplements thereto, as the Placement Agent may reasonably request.

(e) Free Writing Prospectus. The Company covenants that it will not, unless it obtains the prior written consent of the Placement Agent, make any offer relating to the Securities that would constitute an Company Free Writing Prospectus or that would otherwise constitute a “free writing prospectus” (as defined in Rule 405 of the Securities Act) required to be filed by the Company with the Commission or retained by the Company under Rule 433 of the Securities Act. In the event that the Placement Agent expressly consents in writing to any such free writing prospectus (a “Permitted Free Writing Prospectus”), the Company covenants that it shall (i) treat each Permitted Free Writing Prospectus as an Company Free Writing Prospectus, and (ii) comply with the requirements of Rule 164 and 433 of the Securities Act applicable to such Permitted Free Writing Prospectus, including in respect of timely filing with the Commission, legending and record keeping.

(f) Transfer Agent. The Company will maintain, at its expense, a registrar and transfer agent for the Common Stock.

(g) Earnings Statement. As soon as practicable and in accordance with applicable requirements under the Securities Act, but in any event not later than 18 months after the last Closing Date, the Company will make generally available to its security holders and to the Placement Agent an earnings statement, covering a period of at least 12 consecutive months beginning after the last Closing Date, that satisfies the provisions of Section 11(a) and Rule 158 under the Securities Act.

(h) Periodic Reporting Obligations. During the Prospectus Delivery Period, the Company will duly file, on a timely basis, with the Commission and the Trading Market all reports and documents required to be filed under the Exchange Act within the time periods and in the manner required by the Exchange Act.

(i) Additional Documents. The Company will enter into any subscription, purchase or other customary agreements as the Placement Agent or the Investors deem necessary or appropriate to consummate the Offering, all of which will be in form and substance reasonably acceptable to the Placement Agent and the Investors. The Company agrees that the Placement Agent may rely upon, and each is a third party beneficiary of, the representations and warranties, and applicable covenants, set forth in any such purchase, subscription or other agreement with Investors in the Offering.

(j) No Manipulation of Price. The Company will not take, directly or indirectly, any action designed to cause or result in, or that has constituted or might reasonably be expected to constitute, the stabilization or manipulation of the price of any securities of the Company.

(k) Acknowledgment. The Company acknowledges that any advice given by the Placement Agent to the Company is solely for the benefit and use of the Board of Directors of the Company and may not be used, reproduced, disseminated, quoted or referred to, without the Placement Agent's prior written consent.

(l) Announcement of Offering. The Company acknowledges and agrees that the Placement Agent may, subsequent to the Closing, make public its involvement with the Offering.

(m) Reliance on Others. The Company confirms that it will rely on its own counsel and accountants for legal and accounting advice.

(n) Research Matters. By entering into this Agreement, the Placement Agent does not provide any promise, either explicitly or implicitly, of favorable or continued research coverage of the Company and the Company hereby acknowledges and agrees that the Placement Agent's selection as a placement agent for the Offering was in no way conditioned, explicitly or implicitly, on the Placement Agent providing favorable or any research coverage of the Company. In accordance with FINRA Rule 2711(e), the parties acknowledge and agree that the Placement Agent has not directly or indirectly offered favorable research, a specific rating or a specific price target, or threatened to change research, a rating or a price target, to the Company or inducement for the receipt of business or compensation.

Section 5. Conditions of the Obligations of the Placement Agent. The obligations of the Placement Agent hereunder shall be subject to the accuracy of the representations and warranties on the part of the Company set forth in Section 2 hereof, in each case as of the date hereof and as of each Closing Date as though then made, to the timely performance by each of the Company of its covenants and other obligations hereunder on and as of such dates, and to each of the following additional conditions:

(a) Accountants' Comfort Letter. The Placement Agent shall have received, and the Company shall have caused to be delivered to the Placement Agent, a letter from Ernst & Young LLP (the independent registered public accounting firm of the Company), addressed to the Placement Agent, dated as of the Closing Date, in form and substance satisfactory to the Placement Agent. The letter shall not disclose any change in the condition (financial or other), earnings, operations, business or prospects of the Company from that set forth in the Incorporated Documents or the applicable Prospectus or prospectus supplement, which, in the Placement Agent's sole judgment, is material and adverse and that makes it, in the Placement Agent's sole judgment, impracticable or inadvisable to proceed with the Offering of the Securities as contemplated by such Prospectus.

(b) Compliance with Registration Requirements; No Stop Order; No Objection from the FINRA. Each Prospectus (in accordance with Rule 424(b)) and "free writing prospectus" (as defined in Rule 405 of the Securities Act), if any, shall have been duly filed with the Commission, as appropriate; no stop order suspending the effectiveness of the Registration Statement or any part thereof shall have been issued and no proceeding for that purpose shall have been initiated or threatened by the Commission; no order preventing or suspending the use of any Prospectus shall have been issued and no proceeding for that purpose shall have been initiated or threatened by the Commission; no order having the effect of ceasing or suspending the distribution of the Securities or any other securities of the Company shall have been issued by any securities commission, securities regulatory authority or stock exchange and no proceedings for that purpose shall have been instituted or shall be pending or, to the knowledge of the Company, contemplated by any securities commission, securities regulatory authority or stock exchange; all requests for additional information on the part of the Commission shall have been complied with; and the FINRA shall have raised no objection to the fairness and reasonableness of the placement terms and arrangements.

(c) Corporate Proceedings. All corporate proceedings and other legal matters in connection with this Agreement, the Registration Statement and each Prospectus, and the registration, sale and delivery of the Securities, shall have been completed or resolved in a manner reasonably satisfactory to the Placement Agent's counsel, and such counsel shall have been furnished with such papers and information as it may reasonably have requested to enable such counsel to pass upon the matters referred to in this Section 5.

(d) No Material Adverse Change. Subsequent to the execution and delivery of this Agreement and prior to each Closing Date, in the Placement Agent's sole judgment after consultation with the Company, there shall not have occurred any Material Adverse Effect or any material adverse change or development involving a prospective material adverse change in the condition or the business activities, financial or otherwise, of the Company from the latest dates as of which such condition is set forth in the Registration Statement and Prospectus ("Material Adverse Change").

(e) Opinion of Counsel for the Company. The Placement Agent shall have received on each Closing Date the favorable opinion of US legal counsel to the Company, dated as of such Closing Date, including, without limitation, a negative assurance letter addressed to the Placement Agent and in form and substance satisfactory to the Placement Agent.

(f) Officers' Certificate. The Placement Agent shall have received on each Closing Date a certificate of the Company, dated as of such Closing Date, signed by the Chief Executive Officer and Chief Financial Officer of the Company, to the effect that, and the Placement Agent shall be satisfied that, the signers of such certificate have reviewed the Registration Statement, the Incorporated Documents, any Prospectus Supplement, and this Agreement and to the further effect that:

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

(ii) No stop order suspending the effectiveness of the Registration Statement or the use of any Prospectus has been issued and no proceedings for that purpose have been instituted or are pending or, to the Company's knowledge, threatened under the Securities Act; no order having the effect of ceasing or suspending the distribution of the Securities or any other securities of the Company has been issued by any securities commission, securities regulatory authority or stock exchange in the United States and no proceedings for that purpose have been instituted or are pending or, to the knowledge of the Company, contemplated by any securities commission, securities regulatory authority or stock exchange in the United States;

(iii) When the Registration Statement became effective, at the time of sale, and at all times subsequent thereto up to the delivery of such certificate, the Registration Statement and the Incorporated Documents, if any, when such documents became effective or were filed with the Commission, and any Prospectus, contained all material information required to be included therein by the Securities Act and the Exchange Act and the applicable rules and regulations of the Commission thereunder, as the case may be, and in all material respects conformed to the requirements of the Securities Act and the Exchange Act and the applicable rules and regulations of the Commission thereunder, as the case may be, and the Registration Statement and the Incorporated Documents, if any, and any Prospectus, did not and do not include any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading (provided, however, that the preceding representations and warranties contained in this paragraph (iii) shall not apply to any statements or omissions made in reliance upon and in conformity with information furnished in writing to the Company by the Placement Agent expressly for use therein) and, since the effective date of the Registration Statement, there has occurred no event required by the Securities Act and the rules and regulations of the Commission thereunder to be set forth in the Incorporated Documents which has not been so set forth; and

(iv) Subsequent to the respective dates as of which information is given in the Registration Statement, the Incorporated Documents and any Prospectus, there has not been: (a) any Material Adverse Change; (b) any transaction that is material to the Company and the Subsidiaries taken as a whole, except transactions entered into in the ordinary course of business; (c) any obligation, direct or contingent, that is material to the Company and the Subsidiaries taken as a whole, incurred by the Company or any Subsidiary, except obligations incurred in the ordinary course of business; (d) any material change in the capital stock (except changes thereto resulting from the exercise of outstanding stock options or warrants) or outstanding indebtedness of the Company or any Subsidiary; (e) any dividend or distribution of any kind declared, paid or made on the capital stock of the Company; or (f) any loss or damage (whether or not insured) to the property of the Company or any Subsidiary which has been sustained or will have been sustained which has a Material Adverse Effect.

(g) Bring-down Comfort Letter. On each Closing Date, the Placement Agent shall have received from Ernst & Young LLP, or such other independent registered public accounting firm of the Company, a letter dated as of such Closing Date, in form and substance satisfactory to the Placement Agent, to the effect that they reaffirm the statements made in the letter furnished pursuant to subsection (a) of this Section 5, except that the specified date referred to therein for the carrying out of procedures shall be no more than two business days prior to such Closing Date.

(h) Stock Exchange Listing. The Common Stock shall be registered under the Exchange Act and shall be listed on the Trading Market, and the Company shall not have taken any action designed to terminate, or likely to have the effect of terminating, the registration of the Common Stock under the Exchange Act or delisting or suspending from trading the Common Stock from the Trading Market, nor shall the Company have received any information suggesting that the Commission or the Trading Market is contemplating terminating such registration or listing.

(i) Lock-Up Agreements. On the Closing Date, the Placement Agent shall have received the executed lock-up agreement, in the form attached hereto as Exhibit A, from each of the directors and officers of the Company.

(j) Additional Documents. On or before each Closing Date, the Placement Agent and counsel for the Placement Agent shall have received such information and documents as they may reasonably require for the purposes of enabling them to pass upon the issuance and sale of the Securities as contemplated herein, or in order to evidence the accuracy of any of the representations and warranties, or the satisfaction of any of the conditions or agreements, herein contained.

If any condition specified in this Section 5 is not satisfied when and as required to be satisfied, this Agreement may be terminated by the Placement Agent by notice to the Company at any time on or prior to a Closing Date, which termination shall be without liability on the part of any party to any other party, except that Section 6 (Payment of Expenses), Section 7 (Indemnification and Contribution) and Section 8 (Representations and Indemnities to Survive Delivery) shall at all times be effective and shall survive such termination.

Section 6. Payment of Expenses. The Company agrees to pay all costs, fees and expenses incurred by the Company in connection with the performance of its obligations hereunder and in connection with the transactions contemplated hereby, including, without limitation: (i) all expenses incident to the issuance, delivery and qualification of the Securities (including all printing and engraving costs); (ii) all fees and expenses of the registrar and transfer agent of the Common Stock; (iii) all necessary issue, transfer and other stamp taxes in connection with the issuance and sale of the Securities; (iv) all fees and expenses of the Company's counsel, independent public or certified public accountants and other advisors; (v) all costs and expenses incurred in connection with the preparation, printing, filing, shipping and distribution of the Registration Statement (including financial statements, exhibits, schedules, consents and certificates of experts), the Base Prospectus, the Final Prospectus and each Prospectus Supplement, and all amendments and supplements thereto, and this Agreement; (vi) all filing fees, reasonable attorneys' fees and expenses incurred by the Company or the Placement Agent in connection with qualifying or registering (or obtaining exemptions from the qualification or registration of) all or any part of the Securities for offer and sale under the state securities or blue sky laws or the securities laws of any other country, and, if requested by the Placement Agent, preparing and printing a "Blue Sky Survey," an "International Blue Sky Survey," or other memorandum, and any supplements thereto, advising the Placement Agent of such qualifications, registrations and exemptions; (vii) if applicable, the filing fees incident to the review and approval by the FINRA of the Placement Agent's participation in the offering and distribution of the Securities; (viii) the fees and expenses associated with including the Shares and the Warrant Shares on the Trading Market; (ix) all costs and expenses incident to the travel and accommodation of the Company's and the Placement Agent's employees on the "roadshow," if any; and (x) all other fees, costs and expenses referred to in Part II of the Registration Statement.

Section 7. Indemnification and Contribution.

(a) The Company agrees to indemnify and hold harmless the Placement Agent, its affiliates and each person controlling the Placement Agent (within the meaning of Section 15 of the Securities Act), and the directors, officers, agents and employees of the Placement Agent, its affiliates and each such controlling person (the Placement Agent, and each such entity or person, an "Indemnified Person") from and against any losses, claims, damages, judgments, assessments, costs and other liabilities (collectively, the "Liabilities"), and shall reimburse each Indemnified Person for all fees and expenses (including the reasonable fees and expenses of one counsel for all Indemnified Persons, except as otherwise expressly provided herein) (collectively, the "Expenses") as they are incurred by an Indemnified Person in investigating, preparing, pursuing or defending any Actions, whether or not any Indemnified Person is a party thereto, (i) caused by, or arising out of or in connection with, any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, any Incorporated Document, or any Prospectus or by any omission or alleged omission to state therein a material fact necessary to make the statements therein, in light of the circumstances under which they were made, not misleading (other than untrue statements or alleged untrue statements in, or omissions or alleged omissions from, information relating to an Indemnified Person furnished in writing by or on behalf of such Indemnified Person expressly for use in the Incorporated Documents) or (ii) otherwise arising out of or in connection with advice or services rendered or to be rendered by any Indemnified Person pursuant to this Agreement, the transactions contemplated thereby or any Indemnified Person's actions or inactions in connection with any such advice, services or transactions; provided, however, that, in the case of clause (ii) only, the Company shall not be responsible for any Liabilities or Expenses of any Indemnified Person that are finally judicially determined to have resulted solely from such Indemnified Person's (x) gross negligence or willful misconduct in connection with any of the advice, actions, inactions or services referred to above or (y) use of any offering materials or information concerning the Company in connection with the offer or sale of the Securities in the Offering which were not authorized for such use by the Company and which use constitutes gross negligence or willful misconduct. The Company also agrees to reimburse each Indemnified Person for all Expenses as they are incurred in connection with enforcing such Indemnified Person's rights under this Agreement.

(b) Upon receipt by an Indemnified Person of actual notice of an Action against such Indemnified Person with respect to which indemnity may be sought under this Agreement, such Indemnified Person shall promptly notify the Company in writing; provided that failure by any Indemnified Person so to notify the Company shall not relieve the Company from any liability which the Company may have on account of this indemnity or otherwise to such Indemnified Person, except to the extent the Company shall have been prejudiced by such failure. The Company shall, if requested by the Placement Agent, assume the defense of any such Action including the employment of counsel reasonably satisfactory to the Placement Agent, which counsel may also be counsel to the Company. Any Indemnified Person shall have the right to employ separate counsel in any such action and participate in the defense thereof, but the fees and expenses of such counsel shall be at the expense of such Indemnified Person unless: (i) the Company has failed promptly to assume the defense and employ counsel or (ii) the named parties to any such Action (including any impeded parties) include such Indemnified Person and the Company, and such Indemnified Person shall have been advised in the reasonable opinion of counsel that there is an actual conflict of interest that prevents the counsel selected by the Company from representing both the Company (or another client of such counsel) and any Indemnified Person; provided that the Company shall not in such event be responsible hereunder for the fees and expenses of more than one firm of separate counsel for all Indemnified Persons in connection with any Action or related Actions, in addition to any local counsel. The Company shall not be liable for any settlement of any Action effected without its written consent (which shall not be unreasonably withheld). In addition, the Company shall not, without the prior written consent of the Placement Agent (which shall not be unreasonably withheld), settle, compromise or consent to the entry of any judgment in or otherwise seek to terminate any pending or threatened Action in respect of which indemnification or contribution may be sought hereunder (whether or not such Indemnified Person is a party thereto) unless such settlement, compromise, consent or termination includes an unconditional release of each Indemnified Person from all Liabilities arising out of such Action for which indemnification or contribution may be sought hereunder. The indemnification required hereby shall be made by periodic payments of the amount thereof during the course of the investigation or defense, as such expense, loss, damage or liability is incurred and is due and payable.

(c) In the event that the foregoing indemnity is unavailable to an Indemnified Person other than in accordance with this Agreement, the Company shall contribute to the Liabilities and Expenses paid or payable by such Indemnified Person in such proportion as is appropriate to reflect (i) the relative benefits to the Company, on the one hand, and to the Placement Agent and any other Indemnified Person, on the other hand, of the matters contemplated by this Agreement or (ii) if the allocation provided by the immediately preceding clause is not permitted by applicable law, not only such relative benefits but also the relative fault of the Company, on the one hand, and the Placement Agent and any other Indemnified Person, on the other hand, in connection with the matters as to which such Liabilities or Expenses relate, as well as any other relevant equitable considerations; provided that in no event shall the Company contribute less than the amount necessary to ensure that all Indemnified Persons, in the aggregate, are not liable for any Liabilities and Expenses in excess of the amount of fees actually received by the Placement Agent pursuant to this Agreement. For purposes of this paragraph, the relative benefits to the Company, on the one hand, and to the Placement Agent on the other hand, of the matters contemplated by this Agreement shall be deemed to be in the same proportion as (a) the total value paid or contemplated to be paid to or received or contemplated to be received by the Company in the transaction or transactions that are within the scope of this Agreement, whether or not any such transaction is consummated, bears to (b) the fees paid to the Placement Agent under this Agreement. Notwithstanding the above, no person guilty of fraudulent misrepresentation within the meaning of Section 11(f) of the Securities Act, as amended, shall be entitled to contribution from a party who was not guilty of fraudulent misrepresentation.

(d) The Company also agrees that no Indemnified Person shall have any liability (whether direct or indirect, in contract or tort or otherwise) to the Company for or in connection with advice or services rendered or to be rendered by any Indemnified Person pursuant to this Agreement, the transactions contemplated thereby or any Indemnified Person's actions or inactions in connection with any such advice, services or transactions except for Liabilities (and related Expenses) of the Company that are finally judicially determined to have resulted solely from such Indemnified Person's gross negligence or willful misconduct in connection with any such advice, actions, inactions or services.

(e) The reimbursement, indemnity and contribution obligations of the Company set forth herein shall apply to any modification of this Agreement and shall remain in full force and effect regardless of any termination of, or the completion of any Indemnified Person's services under or in connection with, this Agreement.

Section 8. Representations and Indemnities to Survive Delivery. The respective indemnities, agreements, representations, warranties and other statements of the Company or any person controlling the Company, of its officers, and of the Placement Agent set forth in or made pursuant to this Agreement will remain in full force and effect, regardless of any investigation made by or on behalf of the Placement Agent, the Company, or any of its or their partners, officers or directors or any controlling person, as the case may be, and will survive delivery of and payment for the Securities sold hereunder and any termination of this Agreement. A successor to a Placement Agent, or to the Company, its directors or officers or any person controlling the Company, shall be entitled to the benefits of the indemnity, contribution and reimbursement agreements contained in this Agreement.

Section 9. Notices. All communications hereunder shall be in writing and shall be mailed, hand delivered, e-mailed or telecopied and confirmed to the parties hereto as follows:

If to the Placement Agent to the address set forth above, attention: Head of Equity Capital Markets, e-mail: rothcm@roth.com

With a copy to:

Pryor Cashman LLP
7 Times Square
New York, New York 10036
E-mail: ali.panjwani@pryorcashman.com
Attention: M. Ali Panjwani, Esq.

If to the Company:

Bio-Path Holdings, Inc.
4710 Bellaire Boulevard
Suite 210
Bellaire, Texas 77401
E-Mail: pnielsen@biopathholdings.com

With a copy to:

Winstead PC
600 Travis Street
Suite 5200
Houston, Texas 77002
Attention: William R. Rohrich, II
Email: wrohlich@winstead.com
Facsimile: (281) 681-5901

Any party hereto may change the address for receipt of communications by giving written notice to the others.

Section 10. Successors. This Agreement will inure to the benefit of and be binding upon the parties hereto, and to the benefit of the employees, officers and directors and controlling persons referred to in Section 7 hereof, and to their respective successors, and personal representative, and no other person will have any right or obligation hereunder.

Section 11. Partial Unenforceability. The invalidity or unenforceability of any section, paragraph or provision of this Agreement shall not affect the validity or enforceability of any other section, paragraph or provision hereof. If any Section, paragraph or provision of this Agreement is for any reason determined to be invalid or unenforceable, there shall be deemed to be made such minor changes (and only such minor changes) as are necessary to make it valid and enforceable.

Section 12. Governing Law Provisions. This Agreement shall be deemed to have been made and delivered in New York City and both this engagement letter and the transactions contemplated hereby shall be governed as to validity, interpretation, construction, effect and in all other respects by the internal laws of the State of New York, without regard to the conflict of laws principles thereof. Each of the Placement Agent and the Company: (i) agrees that any legal suit, action or proceeding arising out of or relating to this engagement letter and/or the transactions contemplated hereby shall be instituted exclusively in New York Supreme Court, County of New York, or in the United States District Court for the Southern District of New York, (ii) waives any objection which it may have or hereafter to the venue of any such suit, action or proceeding, and (iii) irrevocably consents to the jurisdiction of the New York Supreme Court, County of New York, and the United States District Court for the Southern District of New York in any such suit, action or proceeding. Each of the Placement Agent and the Company further agrees to accept and acknowledge service of any and all process which may be served in any such suit, action or proceeding in the New York Supreme Court, County of New York, or in the United States District Court for the Southern District of New York and agrees that service of process upon the Company mailed by certified mail to the Company's address shall be deemed in every respect effective service of process upon the Company, in any such suit, action or proceeding, and service of process upon the Placement Agent mailed by certified mail to the Placement Agent's address shall be deemed in every respect effective service process upon the Placement Agent, in any such suit, action or proceeding. Notwithstanding any provision of this engagement letter to the contrary, the Company agrees that neither the Placement Agent nor its affiliates, and the respective officers, directors, employees, agents and representatives of the Placement Agent, its affiliates and each other person, if any, controlling the Placement Agent or any of its affiliates, shall have any liability (whether direct or indirect, in contract or tort or otherwise) to the Company for or in connection with the engagement and transaction described herein except for any such liability for losses, claims, damages or liabilities incurred by us that are finally judicially determined to have resulted from the willful misconduct or gross negligence of such individuals or entities. If either party shall commence an action or proceeding to enforce any provision of this Agreement, then the prevailing party in such action or proceeding shall be reimbursed by the other party for its reasonable attorney's fees and other costs and expenses incurred with the investigation, preparation and prosecution of such action or proceeding.

Section 13. General Provisions.

(a) This Agreement constitutes the entire agreement of the parties to this Agreement and supersedes all prior written or oral and all contemporaneous oral agreements, understandings and negotiations with respect to the subject matter hereof. Notwithstanding anything herein to the contrary, the Engagement Agreement, dated August 9, 2022 (the "Engagement Agreement"), between the Company and Roth Capital Partners, LLC shall continue to be effective and the terms therein shall continue to survive and be enforceable by the Placement Agent in accordance with its terms, provided that, in the event of a conflict between the terms of the Engagement Agreement and this Agreement, the terms of this Agreement shall prevail. This Agreement may be executed in two or more counterparts, each one of which shall be an original, with the same effect as if the signatures thereto and hereto were upon the same instrument. This Agreement may not be amended or modified unless in writing by all of the parties hereto, and no condition herein (express or implied) may be waived unless waived in writing by each party whom the condition is meant to benefit. Section headings herein are for the convenience of the parties only and shall not affect the construction or interpretation of this Agreement.

(b) The Company acknowledges that in connection with the offering of the Securities: (i) the Placement Agent has acted at arm's length, are not agents of, and owe no fiduciary duties to the Company or any other person, (ii) the Placement Agent owes the Company only those duties and obligations set forth in this Agreement and (iii) the Placement Agent may have interests that differ from those of the Company. The Company waives to the full extent permitted by applicable law any claims it may have against the Placement Agent arising from an alleged breach of fiduciary duty in connection with the offering of the Securities

[The remainder of this page has been intentionally left blank.]

If the foregoing is in accordance with your understanding of our agreement, please sign below whereupon this instrument, along with all counterparts hereof, shall become a binding agreement in accordance with its terms.

Very truly yours,

BIO-PATH HOLDINGS, INC., a Delaware corporation

By: /s/ Peter Nielsen

Name: Peter Nielsen

Title: President and Chief Executive Officer

The foregoing Placement Agency Agreement is hereby confirmed and accepted as of the date first above written.

ROTH CAPITAL PARTNERS, LLC

By: /s/ James Antonopoulos

Name: James Antonopoulos

Title: Managing Director & Head of Healthcare Investment Banking



Bio-Path Holdings, Inc. Announces \$2.0 Million Registered Direct Offering and Concurrent Private Placement

HOUSTON — November 7, 2022 – Bio-Path Holdings, Inc., (NASDAQ:BPTH), a biotechnology company leveraging its proprietary DNAbilize[®] liposomal delivery and antisense technology to develop a portfolio of targeted nucleic acid cancer drugs, today announced that it has entered into a definitive agreement with certain institutional investors for the issuance and sale of 800,000 shares of its common stock (or common stock equivalents) for a price of \$2.50 per share, for gross proceeds of approximately \$2.0 million, in a registered direct offering. Additionally, in a concurrent private placement, Bio-Path has also agreed to issue to such investors unregistered warrants. The offerings are expected to close on or about November 9, 2022, subject to the satisfaction of customary closing conditions.

Roth Capital Partners is acting as the sole placement agent for the offerings.

Bio-Path will issue to the investor in the concurrent private placement warrants to purchase up to 800,000 shares of common stock, which represents 100% of the number of shares of common stock (or common stock equivalents) issued in the registered direct offering, with an exercise price \$2.85 per share and exercise period commencing six (6) months following the issuance date and a term of five and one-half (5.5) years.

Bio-Path currently intends to use the net proceeds from the offerings for working capital and general corporate purposes.

The shares of common stock (or common stock equivalents) offered in the registered direct offering (but not the warrants issued in the concurrent private placement or the shares of common stock underlying the warrants) are being offered and sold by Bio-Path pursuant to a “shelf” registration statement on Form S-3 (Registration No. 333-265282), including a base prospectus, previously filed with and declared effective by the Securities and Exchange Commission (SEC) on June 14, 2022. The offering of the shares of common stock (or common stock equivalents) will be made only by means of a prospectus supplement that forms a part of the registration statement. A final prospectus supplement and an accompanying base prospectus relating to the registered direct offering will be filed with the SEC and will be available on the SEC's website located at <http://www.sec.gov>. Electronic copies of the prospectus supplement and accompanying base prospectus may also be obtained from Roth Capital Partners, LLC at rothecm@roth.com.

Neither the warrants issued in the concurrent private placement nor the underlying shares of common stock issuable upon exercise of the warrants will be registered under the Securities Act of 1933, as amended (the “Securities Act”), or any state securities laws. The warrants and the underlying shares of common stock issuable upon exercise of the warrants will be issued in reliance on the exemptions from registration provided by Section 4(a)(2) under the Securities Act and Regulation D promulgated thereunder.

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

About Bio-Path Holdings, Inc.

Bio-Path is a biotechnology company developing DNAbilize[®], a novel technology that has yielded a pipeline of RNAi nanoparticle drugs that can be administered with a simple intravenous transfusion. Bio-Path's lead product candidate, prexigebersen (BP1001, targeting the Grb2 protein), is in a Phase 2 study for blood cancers and BP1001-A, a drug product modification of prexigebersen, has been cleared by the FDA and Phase 1 studies in solid tumors will commence in 2022. The Company's second product, BP1002, which targets the Bcl-2 protein, is being evaluated for the treatment of blood cancers and solid tumors, including lymphoma and acute myeloid leukemia. In addition, an IND is expected to be filed for BP1003, a novel liposome-incorporated STAT3 antisense oligodeoxynucleotide developed by Bio-Path as a specific inhibitor of STAT3, in 2022 or the first quarter of 2023.

For more information, please visit the Company's website at <http://www.biopathholdings.com>.

Forward-Looking Statements

This press release contains forward-looking statements that are made pursuant to the safe harbor provisions of the federal securities laws, including statements regarding the offerings, including those relating to the size thereof, the expected proceeds from the offering, the intended use of proceeds and the timing of the closing of the offering. These statements are based on management's current expectations and accordingly are subject to uncertainty and changes in circumstances. Any express or implied statements contained in this press release that are not statements of historical fact may be deemed to be forward-looking statements. Any statements that are not historical facts contained in this release are forward-looking statements that involve risks and uncertainties, including the impact, risks and uncertainties related to COVID-19 and actions taken by governmental authorities or others in connection therewith, Bio-Path's ability to raise needed additional capital on a timely basis in order for it to continue its operations, have success in the clinical development of its technologies, the timing of enrollment and release of data in such clinical studies and the accuracy of such data, limited patient populations of early stage clinical studies and the possibility that results from later stage clinical trials with much larger patient populations may not be consistent with earlier stage clinical trials, the maintenance of intellectual property rights, that patents relating to existing or future patent applications will be issued or that any issued patents will provide meaningful protection of our drug candidates, and such other risks which are identified in Bio-Path's most recent Annual Report on Form 10-K, in any subsequent quarterly reports on Form 10-Q and in other reports that Bio-Path files with the Securities and Exchange Commission from time to time. These documents are available on request from Bio-Path Holdings or at www.sec.gov. Bio-Path disclaims any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

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Contact Information:

Investors

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