

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549**

**Amendment No. 4
To
FORM S-1
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933**

Outlook Therapeutics, Inc.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

2836
(Primary Standard Industrial
Classification Code Number)

38-3982704
(I.R.S. Employer Identification No.)

**7 Clarke Drive
Cranbury, New Jersey 08512
(609) 619-3990**

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

**Lawrence A. Kenyon
President, Chief Executive Officer and Chief Financial Officer
Outlook Therapeutics, Inc.
7 Clarke Drive
Cranbury, New Jersey 08512
(609) 619-3990**

(Name, address, including zip code, and telephone number, including area code, of agent for service)

**Yvan-Claude Pierre
Marianne C. Sarrazin
Pia Kaur
Cooley LLP
1114 Avenue of the Americas
New York, New York 10036
(212) 479-6000**

Copies to:
**Lawrence A. Kenyon
Outlook Therapeutics, Inc.
7 Clarke Drive
Cranbury, New Jersey 08512
(609) 619-3990**

**Jack Hogoboom
Lowenstein Sandler LLP
1251 Avenue of the Americas
New York, NY 10020
(212) 262-6700**

Approximate date of commencement of proposed sale to the public: As soon as practicable after this Registration Statement is declared effective.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box.

If this form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer Accelerated filer Non-accelerated filer Smaller reporting company
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 7(a)(2)(B) of the Securities Act.

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Proposed Maximum Aggregate Offering Price ⁽¹⁾	Amount of Registration Fee ⁽³⁾
Common Stock, \$0.01 par value per share ⁽²⁾	\$25,000,000	\$3,030
Common Stock Purchase Warrants and Shares of Common Stock, \$0.01 par value per share, underlying Common Stock Purchase Warrants ⁽²⁾	\$50,000,000	\$6,060
Total	\$75,000,000	\$9,090⁽³⁾

- (1) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(o) under the Securities Act of 1933, as amended (the "Securities Act").
(2) Pursuant to Rule 416, under the Securities Act the securities being registered hereunder include such indeterminate number of additional shares of common stock as may be issued after the date hereof as a result of stock splits, stock dividends or similar transactions.
(3) Filing fee of \$6,969 previously paid.

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment that specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the Registration Statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

The information in this prospectus is not complete and may be changed. These securities may not be sold until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell these securities and we are not soliciting offers to buy these securities in any jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED APRIL 9, 2019

PROSPECTUS



**4,091,653 Shares of Common Stock
15-Month Warrants to Purchase up to 4,091,653 Shares of Common Stock
Five-Year Warrants to Purchase up to 4,091,653 Shares of Common Stock**

We are offering \$25.0 million of shares of our common stock and warrants to purchase shares of our common stock. Each share of our common stock is being sold together with one 15-month warrant to purchase one share of our common stock and one five-year warrant to purchase one share of our common stock. The warrants will be exercisable immediately at an exercise price per share equal to the combined public offering price per share and accompanying warrants. The shares of common stock and the accompanying warrants can only be purchased together in this offering but will be issued separately and will be immediately separable upon issuance. This prospectus also relates to the offering of the shares of common stock issuable upon exercise of the warrants.

Our common stock is listed on The Nasdaq Capital Market, or Nasdaq, under the symbol "OTLK." On April 5, 2019, the last reported sale price of our common stock on Nasdaq was \$6.11 per share. The actual number of securities, the combined public offering price per share and accompanying warrants, and the exercise price for the accompanying warrants will be determined between us, the underwriters and investors based on market conditions at the time of pricing. The combined public offering price per share and accompanying warrants may be at a discount to the current market price of our common stock. Therefore, the recent market price used throughout this prospectus may not be indicative of the actual combined public offering price for our common stock and the accompanying warrants. There is no established public trading market for the warrants, and we do not expect a market to develop. In addition, we do not intend to apply for listing of the warrants on any national securities exchange or nationally recognized trading system. Without an active trading market, the liquidity of the warrants will be limited.

Investing in our securities involves a high degree of risk. See "Risk Factors" beginning on page 6.

We are an "emerging growth company" under the federal securities laws and are subject to reduced public company reporting requirements for this prospectus and future filings.

	Per Share and Accompanying Warrants	Total
Price to the public	\$	\$
Underwriting discount ⁽¹⁾	\$	\$
Proceeds to us (before expenses)	\$	\$

(1) See "Underwriting" beginning on page 30 for additional information regarding the compensation payable to the underwriters.

Our controlling stockholder and strategic partner, BioLexis Pte. Ltd., or BioLexis, has indicated an interest in purchasing directly or through an affiliate up to and no more than \$5.0 million of the shares of common stock and accompanying warrants in this offering at the combined public offering price per share and accompanying warrants. However, because indications of interest are not binding agreements or commitments to purchase, the underwriters may determine to sell less or no securities in this offering to BioLexis or its affiliate, or BioLexis or its affiliate may determine to purchase less or no securities in this offering. To the extent BioLexis or its affiliate purchase any securities in this offering, the number of securities available for sale to the general public will be accordingly reduced.

Neither the Securities and Exchange Commission, or the SEC, nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

Delivery of the shares of common stock and accompanying warrants is expected to be made on or about _____, 2019.

Sole Book-Running Manager

Oppenheimer & Co.

Co-Manager

Aegis Capital Corp.

The date of this prospectus is _____, 2019

Table of Contents

	Page		Page
Prospectus Summary	1	Description of Securities We Are Offering	21
The Offering	3	Material U.S. Federal Income Tax	
Risk Factors	6	Consequences	23
Special Note Regarding Forward-Looking Statements	8	Underwriting	30
Use of Proceeds	10	Legal Matters	37
Dividend Policy	11	Experts	37
Capitalization	12	Where You Can Find More Information	37
Dilution	14	Incorporation of Documents by Reference	38
Description of Capital Stock	16		

Neither we nor the underwriters have authorized anyone to provide you with information other than that contained in this prospectus or any free writing prospectus prepared by or on behalf of us or to which we have referred you. We and the underwriters take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We and the underwriters are offering to sell, and seeking offers to buy, these securities only in jurisdictions where offers and sales are permitted. The information contained in this prospectus is accurate only as of the date on the front cover page of this prospectus, or other earlier date stated in this prospectus, regardless of the time of delivery of this prospectus or of any sale of our securities.

No action is being taken in any jurisdiction outside the United States to permit a public offering of our securities or possession or distribution of this prospectus in that jurisdiction. Persons who come into possession of this prospectus in jurisdictions outside the United States are required to inform themselves about and to observe any restrictions as to this offering and the distribution of this prospectus applicable to that jurisdiction.

Our name “Outlook Therapeutics,” the Outlook Therapeutics logo and other trademarks or service marks of Outlook Therapeutics, Inc. appearing in this prospectus are the property of Outlook Therapeutics, Inc. Other trademarks, service marks or trade names appearing in this prospectus are the property of their respective owners. We do not intend our use or display of other companies’ trade names, trademarks or service marks to imply a relationship with, or endorsement or sponsorship of us by, these other companies.

Prospectus Summary

This summary highlights information contained elsewhere or incorporated by reference in this prospectus. This summary provides an overview of selected information and does not contain all of the information you should consider before investing in our securities. You should read this entire prospectus carefully, especially the section titled “Risk Factors” and our consolidated financial statements and related notes included elsewhere or incorporated by reference in this prospectus and under similar titles in documents that we incorporate by reference to this prospectus, before making an investment decision. Except as otherwise indicated or unless the context otherwise requires, references to “company,” “we,” “us,” “our” or “Outlook Therapeutics,” refer to Outlook Therapeutics, Inc. and its consolidated subsidiaries.

Company Overview

We are a late clinical-stage biopharmaceutical company focused on developing and commercializing ONS-5010, a complex, technically challenging and commercially attractive monoclonal antibody, or mAb, for various ophthalmic indications. Our goal is to launch ONS-5010 as the first, and only, approved bevacizumab in the United States, Europe, Japan and other markets for the treatment of wet age related macular degeneration, or wet AMD, diabetic macular edema, or DME, and branch retinal vein occlusion, or BRVO.

ONS-5010 is an innovative mAb therapeutic product candidate currently enrolling patients in a Phase 3 clinical trial (ONS-5010-001) in Australia designed to serve as the first of two adequate and well controlled clinical trials evaluating ONS-5010 against ranibizumab (Lucentis) for wet AMD. Enrollment in ONS-5010-001 is approximately 75% complete. The second of the two Phase 3 clinical trials (ONS-5010-002) has been initiated in Australia and began enrolling patients in Australia and New Zealand in March 2019. We submitted an investigational new drug, or IND, application with the U.S. Food and Drug Administration, or FDA, in the first quarter of calendar year 2019, and expect to begin enrolling patients in the U.S. portion of ONS-5010-002 in April 2019. The ONS-5010-002 study is expected to enroll a total of at least 180 patients. Our ONS-5010 clinical program was reviewed at a successful end-of-Phase 2 meeting with the FDA conducted in 2018. We currently plan to meet with European regulatory agencies in the second quarter of 2019, and other foreign regulatory agencies in the second half of 2019. If the program is successful, it will support our plans to submit for regulatory approval in multiple markets in 2020 including the United States, Europe and Japan. Because there are no approved bevacizumab products for the treatment of retinal diseases in such major markets, we are developing ONS-5010 as an innovative therapy and not using the biosimilar drug development pathway. If approved, we believe ONS-5010 has potential to mitigate risks associated with off-label use of Avastin or other drugs. Off-label use of Avastin is currently estimated to account for approximately 50% of all wet AMD prescriptions in the United States.

Separately, we have licensed the emerging markets rights to third parties for development in those markets for two biosimilar product candidates: ONS-3010, a biosimilar to adalimumab (Humira), and ONS-1045, a biosimilar to bevacizumab (Avastin). We do not plan to further advance ONS-3010 and ONS-1045 in major markets, including the United States. At this time, ONS-5010 is our only product candidate in active development.

Risks Associated with Our Business

Our business is subject to a number of risks of which you should be aware before making a decision to invest in our common stock. These risks are more fully described in the section titled “Risk Factors” herein and in the documents incorporated by reference herein.

Additional Information

For additional information related to our business and operations, please refer to the reports incorporated herein by reference, including our Annual Report on Form 10-K for the year ended September 30, 2018 as filed with the SEC on December 18, 2018, our Quarterly Report on Form 10-Q for the quarter ended December 31, 2018 as filed with the SEC on February 14, 2018 and our Current Reports on Form 8-K as filed with the SEC, as described in the section titled “Incorporation of Documents by Reference.”

Implications of Being an Emerging Growth Company

We are an “emerging growth company,” as defined in the Jumpstart Our Business Startups Act, or the JOBS Act, enacted in April 2012, and we may remain an emerging company for up to five years from the closing of our IPO in May 2016. For so long as we remain an emerging growth company, we are permitted and intend to rely on certain exemptions from various public company reporting requirements, including not being required to have our internal control over financial reporting audited by our independent registered public accounting firm pursuant to Section 404(b) of the Sarbanes-Oxley Act of 2002, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and any golden parachute payments not previously approved.

Our Corporate Information

We initially incorporated in January 2010 in New Jersey as Oncobiologics, Inc., and in October 2015, we reincorporated in Delaware by merging with and into a Delaware corporation. In November 2018, we changed our name to Outlook Therapeutics, Inc. Our headquarters are located at 7 Clarke Drive, Cranbury, New Jersey, 08512, and our telephone number at that location is (609) 619-3990. Our website address is www.outlooktherapeutics.com. The information contained on, or that can be accessed through, our website is not part of, and is not incorporated by reference into this prospectus.

The Offering

Common stock offered by us	4,091,653 shares (assuming the sale of \$25.0 million of our shares of common stock and accompanying warrants at an assumed combined public offering price of \$6.11 per share and accompanying warrants, the last reported sale price of our common stock on Nasdaq on April 5, 2019)
Warrants to purchase common stock offered by us	We are also offering warrants to purchase up to an aggregate of 8,183,306 shares of our common stock (assuming a combined public offering price of \$6.11 per share of common stock and accompanying warrants, the last reported sale price of our common stock on the Nasdaq on April 5, 2019). Each share of our common stock is being sold together with: (x) one 15-month warrant to purchase one share of our common stock and (y) one five-year warrant to purchase one share of our common stock. Each warrant will have an exercise price per share equal to the combined public offering price per share and accompanying warrants, will be immediately exercisable and will expire on the 15-month anniversary, in the case of the 15-month warrants, or fifth anniversary, in the case of the 5-year warrants, of the original issuance date. This prospectus also relates to the offering of the shares of common stock issuable upon exercise of the warrants.
Common stock to be outstanding after this offering	15,850,675 shares (assuming the sale of \$25.0 million of our shares of common stock and accompanying warrants at an assumed combined public offering price of \$6.11 per share and accompanying warrants, the last reported sale price of our common stock on Nasdaq on April 5, 2019, and assuming none of the warrants issued in this offering are exercised)
Use of proceeds	<p>We intend to use the net proceeds from this offering, together with our existing cash resources as follows:</p> <ul style="list-style-type: none"> • approximately \$16.0 million to fund the Phase 3 clinical trials of ONS-5010 for wet AMD, DME and BRVO; and • the remainder for general corporate purposes, funding our working capital needs, and scheduled repayments of \$5.0 million outstanding principal and accrued interest on our 5% senior secured notes due June 2019 as required by the terms of a November 2018 amendment, which notes are currently convertible at the option of the holders and have an aggregate outstanding principal and accrued interest balance of approximately \$8.6 million as of the date of this prospectus. <p>Based on our planned use of the net proceeds from this offering and our existing cash and cash equivalents, we estimate that such funds will be sufficient to enable us to complete enrollment in our Phase 3 clinical trial of ONS-5010 for wet AMD, but we will require additional capital to complete the regulatory approval process and commercialize ONS-5010 for wet AMD, and complete the Phase 3 clinical trials for ONS-5010 in other indications. See “Use of Proceeds.”</p>

Risk Factors

An investment in our securities involves a high degree of risk. See the section titled “Risk Factors” beginning on page 5 of this prospectus and the similarly titled sections in the documents incorporated by reference into this prospectus.

Nasdaq Capital Market symbol

“OTLK.” We do not intend to list the warrants on any national securities exchange or nationally recognized trading system or nationally recognized trading system. Without an active trading market, the liquidity of the warrants will be limited.

Our controlling stockholder and strategic partner, BioLexis Pte. Ltd., or BioLexis, has indicated an interest in purchasing directly or through an affiliate up to and no more than \$5.0 million of the shares of common stock and accompanying warrants in this offering at the combined public offering price per share and accompanying warrants. However, because indications of interest are not binding agreements or commitments to purchase, the underwriters may determine to sell less or no securities in this offering to BioLexis or its affiliate, or BioLexis or its affiliate may determine to purchase less or no securities in this offering. To the extent BioLexis or its affiliate purchase any securities in this offering, the number of securities available for sale to the general public will be accordingly reduced.

The number of shares of common stock outstanding after the offering is based on 11,759,022 shares of common stock outstanding as of December 31, 2018 on pro forma basis consisting of (i) 10,636,473 shares of common stock outstanding as of December 31, 2018, (ii) the issuance of an aggregate of 1,072,156 shares of common stock in January and February 2019 to BioLexis Pte. Ltd., or BioLexis, pursuant to our November 2018 private placement, and (iii) the issuance of an aggregate of 50,393 shares of common stock in February and March 2019 upon conversion of an aggregate \$0.5 million principal amount of our senior secured notes; and excludes, as of that date, the following:

- 16,136 shares of common stock issuable upon the exercise of outstanding performance-based stock unit awards, or PSUs, whose terms provide for settlement in shares of common stock or cash at our discretion, with a weighted-average exercise price of \$49.99;
- 7,457 shares of common stock issuable upon vesting of outstanding restricted stock unit awards, or RSUs, granted under our 2015 Equity Incentive Plan, or the 2015 Plan, with a weighted-average grant date fair value of \$155.28;
- 386,247 shares of common stock issuable upon exercise of outstanding stock options granted under the 2015 Plan with a weighted-average exercise price of \$7.16, plus an additional 350,000 shares issuable upon exercise of stock options granted under the 2015 Plan on February 19, 2019;
- 490,767 shares of common stock reserved for future issuance under the 2015 Plan (140,767 after the reduction of 350,000 shares for stock options granted under the 2015 Plan on February 19, 2019), plus an additional 319,094 shares reserved for future issuance as of January 1, 2019, as well as any future automatic increases in the number of shares of common stock reserved for future issuance under the 2015 Plan;
- 68,145 shares of common stock reserved for future issuance under our 2016 Employee Stock Purchase Plan, or the ESPP, as well as any automatic increases in the number of shares of common stock reserved for future issuance under the ESPP;
- 5,661,015 shares of common stock issuable upon the exercise of outstanding warrants, with a weighted-average exercise price of \$8.11 per share;
- 955,927 shares of common stock issuable upon the conversion of outstanding senior secured notes having an aggregate principal amount of \$8.6 million as of March 19, 2019;
- 145,221 shares of common stock issuable upon conversion of outstanding principal and accrued interest on unsecured notes having an aggregate principal amount of \$1.0 million as of March 19, 2019;

- 1,166,156 shares of common stock issuable upon conversion of the 61,708 outstanding shares of our Series A-1 Convertible preferred stock, as well as any future shares of common stock issuable upon conversion of additional shares of Series A-1 Convertible preferred stock that may be issued as payment-in-kind dividends thereon in accordance with their terms;

Except as otherwise indicated herein, all information in this prospectus, including the number of shares of common stock that will be outstanding after this offering, reflects:

- a 1-for-8 reverse stock split of our common stock effected March 15, 2019;
- the issuance of an aggregate of 1,072,156 shares of common stock in January and February 2019 to BioLexis Pte. Ltd., or BioLexis, pursuant to the November 2018 private placement;
- the issuance of an aggregate of 50,393 shares of common stock in February and March 2019 upon conversion of an aggregate \$0.5 million principal amount of senior secured notes;
- no exercise of outstanding options or warrants, or conversion of notes, or settlement of PSUs or RSUs in shares of stock, in each case listed above; and
- no exercise of the warrants offered hereby.

Abandoned Private Offering

Prior to the offering to which this prospectus relates, we commenced and abandoned a private offering in which we sought to raise up to approximately \$50.0 million in proceeds from the sale of securities to fund our Phase 3 clinical trials of ONS-5010 for wet AMD, DME and BRVO, to repay outstanding principal and accrued interest on our 5% senior secured notes and the remainder for working capital and general corporate purposes. The private placement was being contemplated in reliance upon the exemption from registration available under Rule 506 of Regulation D of the Securities Act of 1933, as amended, or the Securities Act. The private offering was made solely to persons or entities whom we and Oppenheimer & Co. Inc., in its capacity as placement agent, believed to be “accredited investors,” as such term is defined in Regulation D under the Securities Act. We abandoned the private offering on or about February 20, 2019 and all offering activity in connection therewith was terminated. We did not accept any offers to buy or indications of interest in the private offering. This prospectus supersedes any offering materials used in the private offering.

Risk Factors

An investment in our securities involves a high degree of risk. Before deciding whether to invest in our securities, you should consider carefully the risks and uncertainties discussed under the heading “Risk Factors” contained in our Annual Report on Form 10-K for the year ended September 30, 2018 as filed with the SEC, and as incorporated by reference herein, and as the same may be amended, supplemented or superseded by the risks and uncertainties described under similar headings in the other documents that are filed after the date hereof and incorporated by reference herein. Additional risks not presently known to us or that we currently believe are immaterial may also significantly impair our business operations. Please also read carefully the section below titled “Special Note Regarding Forward-Looking Statements.”

Risks Related to this Offering and Ownership of Our Securities

If you purchase securities in this offering, you will suffer immediate dilution of your investment. You will experience further dilution if we issue additional equity securities in future financing transactions.

Because the combined public offering price per share of our common stock and accompanying warrants is higher than the net tangible book value per share of our common stock, you will suffer immediate and substantial dilution in the net tangible book value of the common stock you purchase in this offering. Investors purchasing shares of common stock and accompanying warrants in this offering will incur immediate dilution of approximately \$5.80 per share, assuming the sale of \$25.0 million of shares of our common stock and accompanying warrants at an assumed combined public offering price of \$6.11 per share and accompanying warrants, the last reported sale price of our common stock on Nasdaq on April 5, 2019. The discussion above assumes no exercise of the warrants being offered in this offering, no value is attributed to such warrants and such warrants are classified and accounted for as equity. In addition, we have a significant number of stock options and warrants outstanding, as well as outstanding preferred stock and senior secured notes that are convertible into shares of our common stock. To the extent that such outstanding securities are exercised or converted into shares of our common stock, investors purchasing our securities in this offering may experience further dilution.

In addition, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders or result in downward pressure on the price of our common stock. See the section titled “Dilution” for a more detailed discussion of the dilution you will incur if you purchase common stock in this offering.

Our management will have broad discretion in the use of the net proceeds from this offering and may invest or spend the proceeds in ways with which you do not agree and in ways that may not yield a return.

Our management will have broad discretion in the application of the net proceeds from this offering, including for any of the purposes described in the section titled “Use of Proceeds,” and you will not have the opportunity as part of your investment decision to assess whether the net proceeds are being used appropriately. Because of the number and variability of factors that will determine our use of the net proceeds from this offering, their ultimate use may vary from their currently intended use. The failure by our management to apply these funds effectively could harm our business. Pending their use, we may invest the net proceeds from this offering in investment-grade, interest-bearing securities. These investments may not yield a favorable return to our securityholders.

Our independent registered public accounting firm has indicated that our recurring losses from operations raise substantial doubt about our ability to continue as a going concern.

As described in their audit report, our auditors have included an explanatory paragraph that states that we have incurred recurring losses and negative cash flows from operations and have an accumulated deficit at September 30, 2018 of \$216.3 million, \$13.5 million of senior secured notes that may become due in fiscal 2019 and \$4.6 million of unsecured indebtedness, \$1.0 million of which is due on demand, and \$3.6 million of which matured December 22, 2018. These matters raise substantial doubt about our ability to continue as a going concern. Our consolidated financial statements do not include any adjustments that might result

from the outcome of this uncertainty. If we cannot continue as a viable entity, our securityholders may lose some or all of their investment in our company. As of December 31, 2018, we had an accumulated deficit of \$229.7 million, and indebtedness that included \$10.4 million of senior secured notes that may become due in fiscal 2019 and \$4.6 million of unsecured notes, all of which was due on demand as of such date.

BioLexis has beneficial ownership of a significant percentage of our common stock, has the right to designate a majority of our board of directors, and is able to exert significant control over matters subject to stockholder approval, preventing new investors from influencing significant corporate decisions.

BioLexis beneficially owns 14,074,460 shares of our common stock as of March 31, 2019, which includes 1,195,296 shares of common stock issuable upon conversion of 63,250 shares of Series A-1 Convertible preferred stock and 4,657,852 shares of common stock issuable upon exercise of outstanding warrants. Accordingly, BioLexis currently beneficially owns approximately 79.9% of our common stock and controls approximately 72.7% of our outstanding voting power. BioLexis has indicated an interest in acquiring directly or through an affiliate up to \$5.0 million of the shares and accompanying warrants in this offering. If such securities are acquired, its beneficial ownership in our company, and ability to influence the vote and control our company could increase further. The Series A-1 Convertible preferred stock accrues quarterly dividends at a rate of 10.0%, which are payable at our option in additional shares of voting Series A-1 Convertible preferred stock. Under an investor rights agreement, as amended, with BioLexis, BioLexis also currently has the power to designate a majority of our board of directors, and four of our eight board members were designated by BioLexis. BioLexis' interests may not coincide with the interests of other securityholders. BioLexis has the ability to influence our company through both its ownership position and control of our board of directors, which may prevent or discourage unsolicited acquisition proposals or offers for our capital stock that you may believe are in your best interest as one of our securityholders.

Holders of our warrants will have no rights as a common stockholder until they acquire our common stock.

Until you acquire shares of our common stock upon exercise of your warrants, you will have no rights with respect to shares of our common stock issuable upon exercise of your warrants. Upon exercise of your warrants, you will be entitled to exercise the rights of a common stockholder only as to matters for which the record date occurs after the exercise date.

The warrants may not have any value and there is no public market for the accompanying warrants to purchase shares of our common stock being offered in this offering.

In the event our common stock price does not exceed the exercise price of the warrants during the period when the warrants are exercisable, the 5-year warrants may not have any value and the holders of the 15-month warrants may receive only a fraction of the shares of our common stock otherwise issuable upon exercise of the 15-month warrants. In addition, there is no established public trading market for the warrants being offered in this offering, and we do not expect a market to develop. In addition, we do not intend to apply to list the warrants on any national securities exchange or other nationally recognized trading system. Without an active trading market, the liquidity of the warrants will be limited.

Special Note Regarding Forward-Looking Statements

This prospectus and the documents incorporated by reference contain forward-looking statements about us and our industry that involve substantial risks and uncertainties. All statements other than statements of historical facts contained in this prospectus and the documents incorporated by reference, including statements regarding our future financial condition, business strategy and plans, and objectives of management for future operations, are forward-looking statements. In some cases, you can identify forward-looking statements by terminology such as “aim,” “anticipate,” “assume,” “believe,” “contemplate,” “continue,” “could,” “design,” “due,” “estimate,” “expect,” “goal,” “intend,” “may,” “objective,” “plan,” “predict,” “positioned,” “potential,” “seek,” “should,” “target,” “will,” “would” and other similar expressions that are predictions of or indicate future events and future trends, or the negative of these terms or other comparable terminology.

We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our financial condition, results of operations, business strategy and financial needs. These forward-looking statements are subject to a number of known and unknown risks, uncertainties and assumptions, including risks described in the section titled “Risk Factors” contained in our Annual Report on Form 10-K for the year ended September 30, 2018 as filed with the SEC and incorporated by reference herein, as the same may be amended, supplemented or superseded by the risks and uncertainties described under similar headings in the other documents that are filed after the date hereof and incorporated by reference into this prospectus, regarding, among other things:

- the timing and the success of the design of the clinical trials and planned clinical trials of our lead product candidate, ONS-5010;
- whether the results of our clinical trials will be sufficient to support domestic or global regulatory approvals;
- our ability to obtain and maintain regulatory approval for ONS-5010 in the United States and other markets if we successfully complete clinical trials;
- our expectations regarding the potential market size and the size of the patient populations for our product candidates, if approved, for commercial use;
- our ability to fund our working capital requirements;
- the rate and degree of market acceptance of our current and future product candidates;
- the implementation of our business model and strategic plans for our business and product candidates;
- developments or disputes concerning our intellectual property or other proprietary rights;
- our ability to maintain and establish collaborations or obtain additional funding;
- our expectations regarding government and third-party payor coverage and reimbursement;
- our ability to compete in the markets we serve; and
- the factors that may impact our financial results.

These risks are not exhaustive. Other sections of this prospectus or the documents incorporated by reference may include additional factors that could harm our business and financial performance. Moreover, we operate in a very competitive and rapidly changing environment. New risk factors emerge from time to time, and it is not possible for our management to predict all risk factors, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in, or implied by, any forward-looking statements.

You should not rely upon forward-looking statements as predictions of future events. We cannot assure you that the events and circumstances reflected in the forward-looking statements will be achieved or occur. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, levels of activity, performance or achievements. Except as required by law, we undertake no obligation to update publicly any forward-looking statements for any reason after the date of this prospectus or to conform these statements to actual results or to changes in our expectations.

You should carefully read this prospectus, together with the information incorporated herein by reference as described under the heading "Incorporation of Documents by Reference," and the documents that we reference in this prospectus and have filed as exhibits to the registration statement of which this prospectus is a part with the understanding that our actual future results, levels of activity, performance and achievements may be materially different from what we expect. We qualify all of our forward-looking statements by these cautionary statements.

Use of Proceeds

We estimate that the net proceeds from this offering will be approximately \$22.8 million, assuming the sale of \$25.0 million of shares of our common stock at a combined public offering price of \$6.11 per share and accompanying warrants, the last reported sale price of our common stock on Nasdaq on April 5, 2019, after deducting the underwriting discount and estimated offering expenses payable by us.

A \$0.25 increase (decrease) in the assumed combined public offering price of \$6.11 per share and accompanying warrants, the last reported sale price of our common stock on Nasdaq on April 5, 2019, would increase (decrease) the net proceeds to us from this offering by approximately \$1.0 million, assuming that the number of shares and accompanying warrants offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting the underwriting discount and estimated offering expenses payable by us. We may also increase (decrease) the number of shares and accompanying warrants we are offering. An increase (decrease) of 1.0 million in the number of shares and accompanying warrants we are offering would increase (decrease) the net proceeds to us from this offering by approximately \$5.7 million, assuming the assumed public offering price stays the same, and after deducting the underwriting discount and estimated offering expenses payable by us.

We intend to use the net proceeds from this offering, together with our existing cash resources as follows:

- approximately \$16.0 million to fund the Phase 3 clinical trials of ONS-5010 for wet AMD, DME and BRVO; and
- the remainder for general corporate purposes, funding our working capital needs, and scheduled repayments of \$5.0 million outstanding principal and accrued interest on our 5% senior secured notes due June 2019 as required by the terms of a November 2018 amendment, which notes are currently convertible at the option of the holders and have an aggregate outstanding principal and accrued interest balance of approximately \$8.6 million as of the date of this prospectus.

Based on our planned use of the net proceeds from this offering and our existing cash resources, we estimate that such funds will be sufficient to enable us to complete enrollment in our Phase 3 clinical trial of ONS-5010 for wet AMD, but we will require additional capital to complete the regulatory approval process and commercialize ONS-5010 for wet AMD, and complete the Phase 3 clinical trials for ONS-5010 in other indications.

However, due to the uncertainties inherent in the product development process, it is difficult to estimate with certainty the exact amounts of the net proceeds from this offering that may be used for the above purposes. Our management will have broad discretion over the use of the net proceeds from this offering. The amounts and timing of our expenditures will depend upon numerous factors including the results of our research and development efforts, the timing and success of preclinical studies and any ongoing clinical trials or clinical trials we may commence in the future, the timing of regulatory submissions and the amount of cash obtained through current and any future collaborations.

We anticipate that our existing cash and the net proceeds from this offering will be sufficient to fund our planned operations until December 2019. We believe opportunities may exist from time to time to expand our current business through acquisitions or in-licenses of complementary companies, medicines or technologies. While we have no current agreements, commitments or understandings for any specific acquisitions or in-licenses at this time, we may use a portion of the net proceeds for these purposes. Pending the use of the proceeds from this offering as described above, we intend to invest the net proceeds in interest-bearing investment-grade securities or government securities.

Dividend Policy

We have never declared or paid any cash dividends on our capital stock and do not anticipate paying any cash dividends in the foreseeable future. Payment of cash dividends, if any, in the future will be at the discretion of our board of directors and will depend on then-existing conditions, including our financial condition, operating results, contractual restrictions, capital requirements, business prospects and other factors our board of directors may deem relevant. Our outstanding senior secured notes restrict our ability to pay dividends. The terms of our Series A-1 Convertible preferred stock may also act to limit our ability to pay dividends as we may not declare or pay any dividends on our common stock unless we also concurrently declare and set aside for payment or distribution, as applicable, participating dividends for our Series A-1 Convertible preferred stock.

Capitalization

The following table sets forth our cash and capitalization as of December 31, 2018 on:

- an actual basis;
- a pro forma basis to reflect (i) the issuance of an aggregate of 1,072,156 shares of common stock to BioLexis for \$8.0 million of cash proceeds in January and February 2019, (ii) the issuance of an aggregate of 50,393 shares of common stock upon conversion of \$0.5 million aggregate principal amount of senior secured notes in February and March 2019; and (iii) the cash repayment of approximately \$1.5 million of aggregate principal amount and accrued interest on our senior secured notes in February 2019; and
- a pro forma as adjusted basis to give effect to the assumed sale of 4,091,653 shares of common stock and accompanying warrants to acquire an aggregate of 8,183,306 shares of common stock in this offering at an assumed combined public offering price of \$6.11 per share and accompanying warrants, the last reported sale price of our common stock on Nasdaq on April 5, 2019, and after deducting the underwriting discount and estimated offering expenses payable by us.

The table below assumes no exercise of the warrants being offered in the offering, no value is attributed to such warrants and such warrants are classified and accounted for as equity. You should read this table together with our consolidated financial statements and the related notes and the sections titled “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in our Annual Report on Form 10-K for the year ended September 30, 2018 and our Quarterly Report on Form 10-Q for the quarter ended December 31, 2018, each of which are filed with the SEC and incorporated by reference herein.

	As of December 31, 2018		
	Actual	Pro Forma	Pro Forma As Adjusted ⁽¹⁾
Cash	\$ 227,716	\$ 6,722,170	\$ 29,522,170
Debt obligations, current and long term	13,814,108	11,928,533	11,928,533
Convertible preferred stock:			
Series A-1 convertible preferred stock, par value \$0.01 per share; 200,000 shares authorized, 61,708 shares issued and outstanding actual, pro forma and pro forma as adjusted	4,884,924	4,884,924	4,884,924
Stockholders’ equity (deficit):			
Common stock, par value \$0.01 per share; 200,000,000 shares authorized and 10,636,473 shares issued and outstanding, actual; 11,759,022 shares issued and outstanding, pro forma; and 15,850,675 shares issued and outstanding, pro forma as adjusted	106,365	117,590	158,507
Additional paid-in capital	203,237,836	211,628,579	234,387,662
Accumulated deficit	(229,698,465)	(229,698,465)	(229,698,465)
Total stockholders’ equity (deficit)	(26,354,264)	(17,952,296)	4,847,704
Total capitalization	\$ (7,655,232)	\$ (1,138,839)	\$ 21,661,161

(1) A \$0.25 increase (decrease) in the assumed combined public offering price per share and accompanying warrants would increase (decrease) the pro forma as adjusted amount of cash, total stockholders’ equity and total capitalization by approximately \$1.0 million, assuming the number of shares and accompanying warrants offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting the underwriting discount and estimated offering expenses payable by us. We may also increase (decrease) the number of shares and accompanying warrants we are offering. An increase (decrease) of 1.0 million in the number of

shares and accompanying warrants offered by us would increase (decrease) the pro forma as adjusted amount of cash, total stockholders' equity and total capitalization by approximately \$5.7 million, assuming the assumed combined public offering price remains the same, and after deducting the underwriting discount and estimated offering expenses payable by us.

The pro forma as adjusted information discussed above is illustrative only and will be adjusted based on the actual combined public offering price and other terms of this offering determined between us and the underwriters at pricing.

The table above is based on 11,759,022 shares of common stock outstanding as of December 31, 2018 on pro forma basis consisting of (i) 10,636,473 shares of common stock outstanding as of December 31, 2018, (ii) the issuance of an aggregate of 1,072,156 shares of common stock in January and February 2019 to BioLexis pursuant to our November 2018 private placement, and (iii) the issuance of an aggregate of 50,393 shares of common stock in February and March 2019 upon conversion of an aggregate \$0.5 million principal amount of our senior secured notes; and excludes the following:

- 16,136 shares of common stock issuable upon the exercise of outstanding performance-based stock unit awards, or PSUs, whose terms provide for settlement in shares of common stock or cash at our discretion, with a weighted-average exercise price of \$49.99;
- 7,457 shares of common stock issuable upon vesting of outstanding restricted stock unit awards, or RSUs, granted under the 2015 Plan with a weighted average grant date fair value of \$155.28;
- 386,247 shares of common stock issuable upon exercise of outstanding stock options granted under the 2015 Plan with a weighted-average exercise price of \$7.16, plus an additional 350,000 shares issuable upon exercise of stock options granted under the 2015 Plan on February 19, 2019;
- 490,767 shares of common stock reserved for future issuance under the 2015 Plan (140,767 after the reduction of 350,000 shares for stock options granted under the 2015 Plan on February 19, 2019), plus an additional 319,094 shares reserved for future issuance as of January 1, 2019, as well as any future automatic increases in the number of shares of common stock reserved for future issuance under the 2015 Plan;
- 68,145 shares of common stock reserved for future issuance under the ESPP, as well as any automatic increases in the number of shares of common stock reserved for future issuance under the ESPP;
- 5,661,015 shares of common stock issuable upon the exercise of outstanding warrants, with a weighted-average exercise price of \$8.11 per share;
- 955,927 shares of common stock issuable upon the conversion of outstanding senior secured notes having an aggregate principal amount of \$8.6 million as of March 19, 2019;
- 145,221 shares of common stock issuable upon conversion of outstanding principal and accrued interest on unsecured notes having an aggregate principal amount of \$1.0 million as of March 19, 2019;
- 1,166,156 shares of common stock issuable upon conversion of the 61,708 outstanding shares of our Series A-1 Convertible preferred stock, as well as any future shares of common stock issuable upon conversion of additional shares of Series A-1 Convertible preferred stock that may be issued as payment-in-kind dividends thereon in accordance with their terms.

Dilution

If you invest in our securities in this offering, your ownership interest in the common stock you purchase will be diluted immediately to the extent of the difference between the combined public offering price per share of our common stock and accompanying warrants and the pro forma as adjusted net tangible book value per share of our common stock immediately after this offering.

Our pro forma net tangible book deficit as of December 31, 2018 was \$18.0 million, or \$(1.53) per share of our common stock, based on the total number of shares of our common stock outstanding as of December 31, 2018. Pro forma net tangible book deficit per share represents the amount of our total tangible assets less total liabilities, divided by the number of shares of our common stock outstanding as of December 31, 2018, after giving effect to (i) the issuance of an aggregate of 1,072,156 shares of common stock to BioLexis for \$8.0 million in January and February 2019, (ii) the issuance of an aggregate of 50,393 shares of common stock upon conversion of \$0.5 million aggregate principal amount of senior secured notes in February and March 2019; and (iii) the cash repayment of approximately \$1.5 million of aggregate principal amount and accrued interest on our senior secured notes in February 2019;

After giving effect to the issuance and assumed sale of 4,091,653 shares of our common stock in this offering and accompanying warrants to acquire an aggregate of 8,183,306 shares of our common stock at an assumed combined public offering price of \$6.11 per share and accompanying warrants, the last reported sale price of our common stock on Nasdaq on April 5, 2019, assuming no exercise of the warrants offered in the offering, no value is attributed to such warrants, and such warrants are accounted for and classified as equity, and after deducting the underwriting discount and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of December 31, 2018 would have been \$4.8 million, or \$0.31 per share. This represents an immediate increase in pro forma net tangible book value per share of \$1.84 to existing stockholders and immediate dilution of \$5.80 per share to new investors purchasing common stock in this offering. Dilution per share to new investors is determined by subtracting pro forma as adjusted net tangible book value per share after this offering from the combined public offering price per share and accompanying warrants paid by new investors. The following table illustrates this dilution on a per share basis:

Assumed public offering price per share and accompanying warrants	\$6.11
Pro forma net tangible book deficit per share	\$(1.53)
Increase in pro forma net tangible book value per share attributable to new investors	<u>1.84</u>
Pro forma as adjusted net tangible book value per share after this offering	<u>0.31</u>
Dilution per share and accompanying warrants to new investors	<u>\$5.80</u>

A \$0.25 increase (decrease) in the assumed combined public offering price of \$6.11 per share and accompanying warrants, the last reported sale price of our common stock on Nasdaq on April 5, 2019, would increase (decrease) our pro forma as adjusted net tangible book value after this offering by \$0.06 per share, and the dilution to new investors purchasing common stock in this offering by \$0.19 per share, assuming the number of shares and accompanying warrants offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting the underwriting discount and estimated offering expenses payable by us. We may also increase (decrease) the number of shares and accompanying warrants we are offering. An increase (decrease) of 1.0 million shares and accompanying warrants offered by us would increase (decrease) our pro forma as adjusted net tangible book value by \$0.32 (\$0.37) per share and the dilution to new investors purchasing common stock in this offering by (\$0.32) \$0.37 per share, assuming that the assumed combined public offering price remains the same, and after deducting the underwriting discount and estimated offering expenses payable by us. The pro forma as adjusted information discussed above is illustrative only and will be adjusted based on the actual combined public offering price and other terms of this offering as determined between us and the underwriters at pricing.

The table and discussion above are based on 11,759,022 shares of common stock outstanding as of December 31, 2018 on pro forma basis consisting of (i) 10,636,473 shares of common stock outstanding as of December 31, 2018, (ii) the issuance of an aggregate of 1,072,156 shares of common stock in January

and February 2019 to BioLexis pursuant to our November 2018 private placement, and (iii) the issuance of an aggregate of 50,393 shares of common stock in February and March 2019 upon conversion of an aggregate \$0.5 million principal amount of our senior secured notes; and excludes the following:

- 16,136 shares of common stock issuable upon the exercise of outstanding performance-based stock unit awards, or PSUs, whose terms provide for settlement in shares of common stock or cash at our discretion, with a weighted-average exercise price of \$49.99;
- 7,457 shares of common stock issuable upon vesting of outstanding restricted stock unit awards, or RSUs, granted under the 2015 Plan with a weighted-average grant date fair value of \$155.28;
- 386,247 shares of common stock issuable upon exercise of outstanding stock options granted under the 2015 Plan with a weighted-average exercise price of \$7.16, plus an additional 350,000 shares issuable upon exercise of stock options granted under the 2015 Plan on February 19, 2019;
- 490,767 shares of common stock reserved for future issuance under the 2015 Plan (140,767 after the reduction of 350,000 shares for stock options granted under the 2015 Plan on February 19, 2019), plus an additional 319,094 shares reserved for future issuance as of January 1, 2019, as well as any future automatic increases in the number of shares of common stock reserved for future issuance under the 2015 Plan;
- 68,145 shares of common stock reserved for future issuance under the ESPP, as well as any automatic increases in the number of shares of common stock reserved for future issuance under the ESPP;
- 5,661,015 shares of common stock issuable upon the exercise of outstanding warrants, with a weighted-average exercise price of \$8.11 per share;
- 955,927 shares of common stock issuable upon the conversion of outstanding senior secured notes having an aggregate principal amount of \$8.6 million as of March 19, 2019;
- 145,221 shares of common stock issuable upon conversion of outstanding principal and accrued interest on unsecured notes having an aggregate principal amount of \$1.0 million as of March 19, 2019;
- 1,166,156 shares of common stock issuable upon conversion of the 61,708 outstanding shares of our Series A-1 Convertible preferred stock, as well as any future shares of common stock issuable upon conversion of additional shares of Series A-1 Convertible preferred stock that may be issued as payment-in-kind dividends thereon in accordance with their terms.

Description of Capital Stock

As of the date of this prospectus, our authorized capital stock consists of 200,000,000 shares of common stock, par value \$0.01 per share, and 10,000,000 shares of preferred stock, par value \$0.01 per share.

The following summary description of our capital stock is based on the provisions of our amended and restated certificate of incorporation, our amended and restated bylaws and the applicable provisions of the Delaware General Corporation Law. This information may not be complete in all respects and is qualified entirely by reference to the provisions of our amended and restated certificate of incorporation, our amended and restated bylaws and the Delaware General Corporation Law. For information on how to obtain copies of our amended and restated certificate of incorporation and our amended and restated bylaws, see “Where You Can Find More Information.”

Common Stock

As of December 31, 2018, we had 11,759,022 shares of common stock outstanding on pro forma basis consisting of (i) 10,636,473 shares of common stock outstanding as of December 31, 2018, (ii) the issuance of an aggregate of 1,072,156 shares of common stock in January and February 2019 to BioLexis, pursuant to our November 2018 private placement, and (iii) the issuance of an aggregate of 50,393 shares of common stock in February and March 2019 upon conversion of an aggregate \$0.5 million principal amount of our senior secured notes.

Voting Rights

Each holder of common stock is entitled to one vote for each share on all matters submitted to a vote of the stockholders. The affirmative vote of holders of 66⅔% of the voting power of all of the then-outstanding shares of capital stock, voting as a single class, will be required to amend certain provisions of our amended and restated certificate of incorporation, including provisions relating to amending our amended and restated bylaws, the classified board, the size of our board, removal of directors, director liability, vacancies on our board, special meetings, stockholder notices, actions by written consent and exclusive jurisdiction.

Dividends

Subject to preferences that may apply to any outstanding preferred stock, holders of our common stock are entitled to receive ratably any dividends that our board of directors may declare out of funds legally available for that purpose on a non-cumulative basis. Our outstanding senior secured notes first issued beginning December 2016 restrict our ability to pay dividends.

Liquidation

In the event of our liquidation, dissolution or winding up, holders of our common stock are entitled to share ratably in all assets remaining after payment of liabilities and the liquidation preference of any outstanding preferred stock.

Rights and Preferences

Holders of our common stock have no preemptive, conversion, subscription or other rights, and there are no redemption or sinking fund provisions applicable to our common stock. The rights, preferences and privileges of the holders of our common stock are subject to and may be adversely affected by the rights of the holders of shares of any series of our preferred stock that we may designate in the future.

Preferred Stock

Our board of directors has the authority, without further action by our stockholders, to issue up to 10,000,000 shares of preferred stock in one or more series and to fix the number, rights, preferences, privileges and restrictions thereof. These rights, preferences and privileges could include dividend rights, conversion rights, voting rights, terms of redemption, liquidation preferences and sinking fund terms, and the number of shares constituting any series or the designation of such series, any or all of which may be greater than the rights of common stock. The issuance of our preferred stock could adversely affect the

voting power of holders of common stock and the likelihood that such holders will receive dividend payments and payments upon liquidation. In addition, the issuance of preferred stock could have the effect of delaying, deferring or preventing a change in control or other corporate action. In June 2018, our Board designated 200,000 shares as "Series A-1 Convertible preferred stock." As of December 31, 2018, there were 61,708 shares of our Series A-1 Convertible preferred stock issued and outstanding.

Series A-1 Convertible Preferred Stock

As of December 31, 2018, 200,000 shares of Series A-1 Convertible preferred stock have been authorized for issuance, 61,708 of which were issued and outstanding. The shares of Series A-1 Convertible preferred stock have a stated value of \$100.00 per share and the 61,708 outstanding shares are currently convertible into approximately 1,166,156 shares of our common stock.

Dividends

The Series A-1 Convertible preferred stock accrue dividends at a rate of 10% per annum, compounded quarterly, payable quarterly at our option in cash or in kind in additional shares of Series A-1 Convertible preferred stock. The Series A-1 Convertible preferred stock are also entitled to dividends on an as-if-converted basis in the same form as any dividends actually paid on shares of our common stock or other securities. The initial conversion rate is subject to appropriate adjustment in the event of a stock split, stock dividend, combination, reclassification or other recapitalization affecting our common stock.

Voting

The holders of the Series A-1 Convertible preferred stock have the right to vote on matters submitted to a vote of our stockholders on an as-converted basis. In addition, without the prior written consent of a majority of the outstanding shares of Series A-1 Convertible preferred stock, we may not take certain actions.

The terms of the Series A-1 Convertible preferred stock distinguish between certain liquidation events (such as a voluntary or involuntary liquidation, dissolution or winding up of our company) and "deemed" liquidation events (such as a sale of all or substantially all of our assets, various merger and reorganization transactions, being delisted from the Nasdaq and the occurrence of an event of default under the terms of the senior secured notes), in each case as defined in the Certificate of Designation. In the event of a liquidation (as defined in the Certificate of Designation) the liquidation preference payable equals the sum of (A) 550% of the stated value per share plus (B) (x) 550% of any accrued but unpaid preferred dividends (as defined in the Certificate of Designation) plus (y) any unpaid participating dividends (as defined in the Certificate of Designation). In the case of a deemed liquidation event (as defined in the Certificate of Designation), the multiplier is increased to 600%.

Conversion

The Series A-1 Convertible preferred stock is convertible at any time at the option of the holder based on the then applicable conversion rate. If conversion is in connection with a liquidation (as defined in the Certificate of Designation), the holder is entitled to receive 550% of the number of shares of common stock issuable based upon the then applicable conversion rate. In the event of a deemed liquidation event (as defined in the Certificate of Designation), the multiplier is increased to 600%.

Redemption

Additionally, the holder may require the Company to redeem the Series A-1 Convertible preferred stock in the event of deemed liquidation event for the sum of (A) 600% of the stated value per share plus (B) an amount equal to (x) 600% of any accrued, but unpaid, preferred dividends plus (y) any unpaid participating dividends, although such redemption may not be made without the consent of the senior secured noteholders if such notes are outstanding at the time of any such redemption.

Common Stock Equivalents

As of December 31, 2018, we had issued and outstanding 16,136 PSUs, 7,457 RSUs and 386,247 stock option awards under our equity incentive plans. At such date, we also had outstanding warrants to acquire

an aggregate of 5,661,015 shares of our common stock. In addition, as of December 31, 2018, we had 61,708 shares of our Series A-1 Convertible preferred stock issued and outstanding. We also had outstanding an aggregate \$10.4 million principal amount of senior secured notes, which are convertible into shares of our common stock at an initial conversion price of \$8.9539 per share and an aggregate \$1.0 million of unsecured notes, which are currently convertible into shares of our common stock at an initial conversion price of \$13.44 per share. In February and March 2019, we issued an aggregate of 50,393 shares of our common stock upon conversion of an aggregate of \$0.5 million principal amount of senior secured notes.

Stockholder Registration Rights

Certain holders of our securities, including certain holders of 5% of our capital stock, certain of our directors, and the holder of the Series A-1 Convertible preferred stock are entitled to certain rights with respect to registration of such securities under the Securities Act. These securities are referred to as registrable securities. The holders of these registrable securities possess registration rights pursuant to the terms of registration rights agreements.

In general, the registration of shares of our common stock pursuant to the exercise of registration rights enables the holders to trade such shares without restriction under the Securities Act when the applicable registration statement is declared effective. We generally have agreed to pay the registration expenses for such registration statements, other than underwriting discounts, selling commissions and stock transfer taxes, of the shares registered.

Generally, in an underwritten offering, the managing underwriter, if any, has the right, subject to specified conditions, to limit the number of shares the holders may include. We must use commercially reasonable efforts to keep the registration statement effective until the earlier of the date on which all registrable securities covered by such registration statement have been sold, or at such time that the holders of the registrable securities can sell their shares under Rule 144 of the Securities Act during any three-month period.

Anti-Takeover Provisions of Delaware Law and Our Charter Documents

Section 203 of the Delaware General Corporation Law

We are subject to Section 203 of the Delaware General Corporation Law, which prohibits a Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years after the date that such stockholder became an interested stockholder, with the following exceptions:

- before such date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;
- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction began, excluding for purposes of determining the voting stock outstanding (but not the outstanding voting stock owned by the interested stockholder) those shares owned (1) by persons who are directors and also officers and (2) employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; and
- on or after such date, the business combination is approved by the board of directors and authorized at an annual or special meeting of the stockholders, and not by written consent, by the affirmative vote of at least 66 $\frac{2}{3}$ % of the outstanding voting stock that is not owned by the interested stockholder.

In general, Section 203 defines a “business combination” to include the following:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, pledge or other disposition of 10% or more of the assets of the corporation involving the interested stockholder;

- subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;
- any transaction involving the corporation that has the effect of increasing the proportionate share of the stock or any class or series of the corporation beneficially owned by the interested stockholder;
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits by or through the corporation; and
- in general, Section 203 defines an “interested stockholder” as an entity or person who, together with the person’s affiliates and associates, beneficially owns, or within three years prior to the time of determination of interested stockholder status did own, 15% or more of the outstanding voting stock of the corporation.

The statute could prohibit or delay mergers or other takeover or change in control attempts and, accordingly, may discourage attempts to acquire us even though such a transaction may offer our stockholders the opportunity to sell their stock at a price above the prevailing market price.

Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws, as Amended

Among other things, our amended and restated certificate of incorporation and amended and restated bylaws, as amended:

- permit our board of directors to issue up to 10,000,000 shares of preferred stock, with any rights, preferences and privileges as they may designate, including the right to approve an acquisition or other change in control;
- provide that the authorized number of directors may be changed only by resolution of our board of directors;
- provide that our board of directors is classified into three classes of directors;
- provide that, subject to the rights of any series of preferred stock to elect directors, directors may only be removed for cause, which removal may be effected, subject to any limitation imposed by law, by the holders of at least a majority of the voting power of all of our then-outstanding shares of the capital stock entitled to vote generally at an election of directors;
- provide that all vacancies, including newly created directorships, may, except as otherwise required by law, be filled by the affirmative vote of a majority of directors then in office, even if less than a quorum;
- require that any action to be taken by our stockholders must be effected at a duly called annual or special meeting of stockholders and not be taken by written consent or electronic transmission;
- provide that stockholders seeking to present proposals before a meeting of stockholders or to nominate candidates for election as directors at a meeting of stockholders must provide advance notice in writing, and also specify requirements as to the form and content of a stockholder’s notice;
- provide that special meetings of our stockholders may be called only by the chairman of our board of directors, our chief executive officer or president or by our board of directors pursuant to a resolution adopted by a majority of the total number of authorized directors; and
- not provide for cumulative voting rights, therefore allowing the holders of a majority of the shares of common stock entitled to vote in any election of directors to elect all of the directors standing for election, if they should so choose.

The amendment of any of these provisions requires approval by the holders of at least 66 $\frac{2}{3}$ % of the voting power of all of our then-outstanding common stock entitled to vote generally in the election of directors, voting together as a single class.

The combination of these provisions may make it more difficult for our existing stockholders to replace our board of directors as well as for another party to obtain control of us by replacing our board of directors. Because our board of directors has the power to retain and discharge our officers, these provisions could

also make it more difficult for existing stockholders or another party to effect a change in management. In addition, the authorization of undesignated preferred stock makes it possible for our board of directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change our control.

These provisions are intended to enhance the likelihood of continued stability in the composition of our board of directors and its policies and to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to reduce our vulnerability to hostile takeovers and to discourage certain tactics that may be used in proxy fights. However, such provisions could have the effect of discouraging others from making tender offers for our shares and may have the effect of delaying changes in our control or management. As a consequence, these provisions may also inhibit fluctuations in the market price of our stock that could result from actual or rumored takeover attempts. We believe that the benefits of these provisions, including increased protection of our potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure our company, outweigh the disadvantages of discouraging takeover proposals, because negotiation of takeover proposals could result in an improvement of their terms.

Choice of Forum

Our amended and restated certificate of incorporation, as amended, and our amended and restated bylaws, as amended, provides that the Court of Chancery of the State of Delaware is the exclusive forum for any derivative action or proceeding brought on our behalf; any action asserting a breach of fiduciary duty; any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our certificate of incorporation or our bylaws; or any action asserting a claim against us that is governed by the internal affairs doctrine. The enforceability of similar choice of forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that, in connection with one or more actions or proceedings described above, a court could find the choice of forum provisions contained in our amended and restated certificate of incorporation to be inapplicable or unenforceable.

Listing

Our common stock and Series A warrants are listed on The Nasdaq Capital Market under the symbols "OTLK" and "OTLKW," respectively.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer & Trust Company, LLC. Its address is 6201 15th Avenue, Brooklyn, New York 11219.

DESCRIPTION OF SECURITIES WE ARE OFFERING

We are offering (i) shares of our common stock, (ii) 15-month warrants to purchase up to an aggregate of shares of our common stock, and (iii) five-year warrants to purchase up to an aggregate of shares of our common stock. Each share of common stock is being sold together with one 15-month warrant to purchase one share of common stock and one five-year warrant to purchase one share of common stock. The shares of common stock and accompanying warrants will be issued separately. We are also registering the shares of common stock issuable from time to time upon exercise of the warrants offered hereby.

Common Stock

The material terms and provisions of our common stock and each other class of our securities that qualifies or limits our common stock are described in the section entitled “Description of Capital Stock” beginning on page [16](#) of this prospectus.

Warrants to Purchase Common Stock

The following summary of certain terms and provisions of the warrants that are being offered hereby is not complete and is subject to, and qualified in its entirety by, the provisions of the warrants, the forms of which are filed as exhibits to the warrant agreement, which is filed as an exhibit to the registration statement of which this prospectus forms a part. The warrants will be issued pursuant to a warrant agreement, in book-entry form and represented by global certificate. Physical warrant certificates may be obtained upon request to the warrant agent as provided in the warrant agreement. Prospective investors should carefully review the terms and provisions of the form of warrant agreement and the respective forms of the warrants for a complete description of the terms and conditions of the warrants.

Duration and Exercise Price

Each 15-month warrant offered hereby will have an initial exercise price per share equal to the combined public offering price per share and accompanying warrants, will be immediately exercisable and expire on the 15-month anniversary of the original issuance date. Each five-year warrant offered hereby will have an initial exercise price per share equal to the combined public offering price per share and accompanying warrants, will be immediately exercisable and expire on the fifth anniversary of the original issuance date. The exercise price and number of shares of common stock issuable upon exercise of the warrants offered hereby is subject to appropriate adjustment in the event of stock dividends, stock splits, reorganizations or similar events affecting our common stock and the exercise price, as well as certain issuances of equity securities at an effective price per share lower than the then applicable exercise price per share. All of the warrants offered hereby will be issued separately from the common stock, and may be transferred separately immediately thereafter. One 15-month warrant to purchase one share of our common stock and one five-year warrant to purchase one share of our common stock will be issued for every one share of common stock purchased in this offering.

Exercisability

The warrants offered hereby will be exercisable, at the option of each holder, in whole or in part, by delivering a duly executed exercise notice accompanied by payment in full for the number of shares of our common stock purchased upon such exercise (except in the case of a cashless exercise as discussed below). A holder (together with its affiliates) may not exercise any portion of a warrant to the extent that the holder would own more than 4.99% or 9.99% at the holder’s option of the outstanding stock immediately after exercise, except that upon at least 61 days’ prior notice from the holder to us, the holder may increase the amount of ownership of outstanding stock after exercising the holder’s warrants to no more than 9.99%. No fractional shares of common stock will be issued in connection with the exercise of a warrant. In lieu of fractional shares, we will pay the holder an amount in cash equal to the fractional amount multiplied by the exercise price.

Cashless Exercise

If, at the time a holder exercises its warrants, a registration statement registering the issuance of the shares of common stock underlying the warrants under the Securities Act is not then effective or available, then in

lieu of making the cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise (either in whole or in part) the net number of shares of common stock determined according to a formula set forth in the warrants. In addition, the 15-month warrants also provide that, beginning one month after issuance, such warrants may be exercised at the option of the holder on a cashless basis, in whole or in part for a whole number of shares, for 0.50 of the shares that would be received upon cash exercise, if on the date of exercise, the weighted average price of our common stock is higher than the then applicable exercise price per share.

Fundamental Transaction

In the event of a fundamental transaction, as described in the warrants and generally including any reorganization, recapitalization or reclassification of our common stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another person, the acquisition of more than 50% of our outstanding common stock, or any person or group becoming the beneficial owner of 50% of the voting power represented by our outstanding common stock, the holders of the warrants will be entitled to receive upon exercise the kind and amount of securities, cash or other property that the holders would have received had they exercised the warrants immediately prior to such fundamental transaction. In addition, in the event of a fundamental transaction that is a “change of control” that is approved by our board of directors, the holders of the warrants have the right to require us or a successor entity to repurchase the warrants for cash in the amount of the Black-Scholes value of the unexercised portion of the warrants on the date of the consummation of the change of control transaction. In the event of a change of control transaction that is not approved by our board of directors, the holders of the warrants have the right to require us or a successor entity to repurchase the warrants for the same type and form of consideration (and in the same proportion) paid in the change of control transaction in the amount of the Black Scholes value of the unexercised portion of the warrants on the date of the consummation of the change of control transaction, whether in cash, shares of common stock or any combination thereof, or whether the holders of our common stock are given the choice to receive from alternative forms of consideration in connection with the change of control transaction.

Transferability

Subject to applicable laws, warrants in book-entry form may be transferred through the facilities of the Depository Trust Company and warrants in physical form may be transferred upon surrender of the warrant together with the appropriate instruments of transfer to the warrant agent.

Exchange Listing

There is no established public trading market for the warrants, and we do not expect a market to develop. In addition, we do not intend to list the warrants on any national securities exchange or nationally recognized trading system. Without an active trading market, the liquidity of the warrants will be limited.

Right as a Stockholder

Except as otherwise provided in the warrants or by virtue of such holder’s ownership of shares of our common stock, the holders of the warrants do not have the rights or privileges of holders of our common stock, including any voting rights, until they exercise their warrants.

Warrant Agent

American Stock Transfer & Trust Company LLC is acting as warrant agent for the warrants offered in the offering.

Material U.S. Federal Income Tax Consequences

The following is a summary of the material U.S. federal income tax consequences of the purchase, ownership and disposition of our securities, but does not purport to be a complete analysis of all the potential tax considerations relating thereto. This summary is based upon the provisions of the Internal Revenue Code of 1986, as amended, or the Code, U.S. Treasury Regulations promulgated thereunder, administrative rulings and judicial decisions, all as of the date hereof. These authorities may be changed or subject to differing interpretations, possibly with retroactive effect, so as to result in United States federal income tax consequences different from those set forth below. We have not sought and will not seek any ruling from the Internal Revenue Service, or the IRS, with respect to the statements made and the conclusions reached in the following summary, and there can be no assurance that the IRS or a court will agree with such statements and conclusions.

This summary also does not address the tax considerations arising under the laws of any U.S. state or local or any non-U.S. jurisdiction, estate or gift tax, the 3.8% Medicare tax on net investment income or any alternative minimum tax consequences. In addition, this discussion does not address tax considerations applicable to a Non-U.S. Holder's particular circumstances or to a Non-U.S. Holder that may be subject to special tax rules, including, without limitation:

- banks, insurance companies or other financial institutions;
- tax-exempt or government organizations;
- brokers of or dealers in securities or currencies;
- traders in securities that elect to use a mark-to-market method of accounting for their securities holdings;
- persons that own, or are deemed to own, more than five percent of our capital stock;
- certain U.S. expatriates, citizens or former long-term residents of the United States;
- persons who hold our common stock as a position in a hedging transaction, "straddle," "conversion transaction," synthetic security, other integrated investment, or other risk reduction transaction;
- persons who do not hold our common stock as a capital asset within the meaning of Section 1221 of the Code (generally, for investment purposes);
- persons deemed to sell our common stock under the constructive sale provisions of the Code;
- real estate investment trusts or regulated investment companies;
- pension plans;
- partnerships, or other entities or arrangements treated as partnerships for United States federal income tax purposes, or investors in any such entities;
- persons for whom our stock constitutes "qualified small business stock" within the meaning of Section 1202 of the Code;
- integral parts or controlled entities of foreign sovereigns;
- tax-qualified retirement plans;
- controlled foreign corporations;
- persons subject to special tax accounting rules under Section 451(b) of the Code;
- passive foreign investment companies and corporations that accumulate earnings to avoid United States federal income tax; or
- persons that acquire our common stock as compensation for services.

In addition, if a partnership, including any entity or arrangement classified as a partnership for United States federal income tax purposes, holds our common stock, the tax treatment of a partner generally will depend on the status of the partner, the activities of the partnership, and certain determinations made at

the partner level. Accordingly, partnerships that hold our securities, and partners in such partnerships, should consult their tax advisors regarding the U.S. federal income tax consequences to them of the purchase, ownership, and disposition of our common stock.

You are urged to consult your tax advisor with respect to the application of the U.S. federal income tax laws to your particular situation, as well as any tax consequences of the purchase, ownership and disposition of our securities arising under the U.S. federal estate or gift tax rules or under the laws of any United States state or local or any non-U.S. or other taxing jurisdiction or under any applicable tax treaty.

Allocation of Purchase Price

For U.S. federal income tax purposes, the purchase of shares and accompanying warrants in this offering by non-U.S. holders will be treated as the purchase of two components: a component consisting of one share and a component consisting of two warrants to purchase two warrant shares. The purchase price for the shares and warrants will be allocated between these two components in proportion to their relative fair market values at the time the shares and the accompanying warrants are purchased by the non-U.S. holder. This allocation of the purchase price will establish the non-U.S. holder's initial tax basis for U.S. federal income tax purposes for each share and each warrant.

A holder's allocation of the purchase price between the shares and the warrants is not binding on the IRS or the courts, and no assurance can be given that the IRS or the courts will agree with a holder's allocation. Each non-U.S. holder should consult its own tax advisor regarding the allocation of the purchase price between the shares and warrants.

Tax Considerations Applicable to U.S. Holders

Definition of U.S. Holder

In general, a "U.S. holder" means a beneficial owner of our securities (other than a partnership or an entity or arrangement treated as a partnership for U.S. federal income tax purposes) that is, for U.S. federal income tax purposes:

- an individual who is a citizen or resident of the United States;
- a corporation, or an entity treated as a corporation for U.S. federal income tax purposes, created or organized in the United States or under the laws of the United States or of any state thereof or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income tax regardless of its source; or
- a trust if (a) a U.S. court can exercise primary supervision over the trust's administration and one or more U.S. persons have the authority to control all of the trust's substantial decisions or (b) the trust has a valid election in effect under applicable U.S. Treasury Regulations to be treated as a U.S. person.

Gain on Sale or Other Taxable Disposition of the Shares

Upon the sale, exchange or other taxable disposition of the shares of common stock or shares issuable upon exercise of the accompanying warrants, a U.S. holder will generally recognize capital gain or loss equal to the difference between the amount of cash and the fair market value of any property received upon the sale, exchange or other taxable disposition and such U.S. holder's adjusted tax basis in the shares of common stock or shares issuable upon exercise of the accompanying warrants. This capital gain or loss will be long-term capital gain or loss if the U.S. holder's holding period in shares of common stock or shares issuable upon exercise of the accompanying warrants is more than one year at the time of the sale, exchange or other taxable disposition. Long-term capital gains recognized by certain non-corporate U.S. holders, including individuals, generally will be subject to reduced rates of U.S. federal income tax. The deductibility of capital losses is subject to certain limitations.

Gain on Sale or Other Disposition or Exercise of Warrants

Upon the sale or other disposition of a warrant (other than by exercise), a U.S. holder will generally recognize capital gain or loss equal to the difference between the amount realized on the sale or other

disposition and the U.S. holder's tax basis in the warrant. This capital gain or loss will be long-term capital gain or loss if the U.S. holder's holding period in such warrant is more than one year at the time of the sale or other disposition. The deductibility of capital losses is subject to certain limitations.

A U.S. holder generally will not recognize gain or loss on the exercise of a warrant and the related receipt of shares of our common stock upon exercise thereof (unless cash is received in lieu of the issuance of a fractional share of common stock upon exercise). A U.S. holder's initial tax basis in a share of our common stock received upon exercise of a warrant will be equal to the sum of (a) such U.S. holder's tax basis in the warrant plus (2) the exercise price paid by such U.S. holder on the exercise of such warrant. A U.S. holder's holding period in a share of common stock received exercise of a warrant should begin on the day after the date that such warrant is exercised by such U.S. holder. Although there is no direct legal authority as to the U.S. federal income tax treatment of an exercise of a warrant on a cashless basis, we intend to take the position that such exercise will not be taxable, either because the exercise is not a gain realization event or because it qualifies as a tax-free recapitalization. In the former case, the holding period of the shares received upon exercise of the warrants should commence on the day after the warrant is exercised. In the latter case, the holding period of the shares received upon exercise of the warrants would include the holding period of the exercised warrant. However, our position is not binding on the IRS, and the IRS may treat a cashless exercise of a warrant as a taxable exchange. U.S. holders are urged to consult their tax advisors as to the consequences of an exercise of a warrant on a cashless basis, including with respect to their holding period and tax basis in the shares received upon exercise of the warrants.

Lapse of Warrants

If a U.S. holder allows a warrant to expire unexercised, such U.S. holder will recognize a capital loss in an amount equal to such holder's tax basis in the warrant. Because the term of the warrants purchased in this offering is more than one year, the U.S. holder's capital loss will be treated as a long-term capital loss. The deductibility of capital losses is subject to certain limitations.

Constructive Dividends on Warrants

Under Section 305 of the Code, an adjustment to the number of shares of common stock that will be issued on the exercise of the warrants, or an adjustment to the exercise price of the warrants, may be treated as a constructive distribution to a U.S. holder of the warrants if, and to the extent that, such adjustment has the effect of increasing such U.S. holder's proportionate interest in our earnings and profits as determined under U.S. federal income tax principles or our assets, depending on the circumstances of such adjustment (for example, if such adjustment is to compensate for a distribution of cash or other property to our shareholders).

Backup Withholding and Information Reporting

A U.S. holder may be subject to information reporting and backup withholding when such holder receives payments on our securities (including constructive dividends) or receives proceeds from the sale or other taxable disposition of our securities. Certain U.S. holders are exempt from backup withholding, including C corporations and certain tax-exempt organizations. A U.S. holder will be subject to backup withholding if such holder is not otherwise exempt and such holder:

- fails to furnish the holder's taxpayer identification number, which for an individual is ordinarily his or her social security number;
- furnishes an incorrect taxpayer identification number;
- is notified by the IRS that the holder previously failed to properly report payments of interest or dividends;
or
- fails to certify under penalties of perjury that the holder has furnished a correct taxpayer identification number and that the IRS has not notified the holder that the holder is subject to backup withholding.

Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules may be allowed as a refund or a credit against a U.S. holder's U.S. federal income tax liability, provided the required information is timely furnished to the IRS. U.S. holders should consult their tax advisors regarding their qualification for an exemption from backup withholding and the procedures for obtaining such an exemption.

Tax Considerations Applicable to Non-U.S. Holders

Definition of Non-U.S. Holder

For purposes of this discussion, a "non-U.S. holder" is a beneficial owner of our securities that is neither a U.S. holder nor an entity treated as a partnership for U.S. federal income tax purposes.

Exercise of Warrants

A non-U.S. holder generally will not recognize gain or loss on the exercise of a warrant and the related receipt of shares of our common stock upon exercise thereof (unless cash is received in lieu of the issuance of a fractional share of common stock upon exercise and certain other conditions are present, as discussed below under "— Gain on Sale, Exchange or Other Taxable Disposition of Our Securities"). See "— Tax Considerations Applicable to U.S. Holders — Gain Sale or Other Taxable Disposition of the Shares" and "— Gain on Sale or Other Disposition or Exercise of Warrants." However, if a cashless exercise of warrants results in a taxable exchange, as described in "— Tax Considerations Applicable to U.S. Holders — Gain Sale or Other Taxable Disposition of the Shares" and "— Gain on Sale or Other Disposition or Exercise of Warrants" the rules described below under "— Gain on Sale, Exchange or Other Taxable Disposition of Our Securities" would apply.

Lapse of Warrants

If a non-U.S. holder allows a warrant to expire unexercised, such non-U.S. holder will recognize a capital loss in an amount equal to such holder's tax basis in the warrant. See "— Tax Considerations Applicable to U.S. Holders — Lapse of Warrants" above.

Constructive Dividends on the Warrants

See the discussion of the rules applicable to constructive distributions on a warrant under the heading "— Tax Considerations Applicable to U.S. Holders — Constructive Dividends on Warrants" above. If an adjustment to the number of shares that will be issued on the exercise of the warrants, or an adjustment to the exercise price of the warrants, results in a constructive distribution, as described in "— Tax Considerations Applicable to U.S. Holders — Constructive Dividends on Warrants," the rules described below under "— Distributions" would apply.

Distributions

Distributions (including constructive distributions as described above), if any, on the shares of common stock, the shares of common stock underlying the warrants or the warrants generally will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. If a distribution exceeds our current and accumulated earnings and profits, the excess will be treated as a tax-free return of the non-U.S. holder's investment, up to such non-U.S. holder's adjusted tax basis in the shares, the shares underlying the warrants or the warrants, as applicable. Any remaining excess will be treated as capital gain from the sale or exchange of such shares or underlying shares, subject to the tax treatment described below in "— Gain on Sale, Exchange or Other Taxable Disposition of Our Securities."

Dividends paid to a non-U.S. holder will generally be subject to withholding of U.S. federal income tax at a 30% rate of the gross amount of the dividend or such lower rate as may be specified by an applicable income tax treaty between the United States and such non-U.S. holder's country of residence for purposes of such treaty.

Dividends that are treated as effectively connected with a trade or business conducted by a non-U.S. holder within the United States and, if an applicable income tax treaty so provides, that are attributable to a permanent establishment or a fixed base maintained by the non-U.S. holder within the United States, are generally exempt from the 30% withholding tax if the non-U.S. holder satisfies applicable certification and disclosure requirements. However, such U.S. effectively connected income, net of specified deductions and credits, is taxed at the same graduated U.S. federal income tax rates applicable to U.S. persons (as defined in the Code). Any

U.S. effectively connected income received by a non-U.S. holder that is a corporation may also, under certain circumstances, be subject to an additional “branch profits tax” at a 30% rate or such lower rate as may be specified by an applicable income tax treaty between the United States and such non-U.S. holder’s country of residence for purposes of such treaty.

To claim a reduction or exemption from withholding, a non-U.S. holder generally will be required to provide (a) a properly executed IRS Form W-8BEN or IRS Form W-8BEN-E (or successor form) and satisfy applicable certification and other requirements to claim the benefit of an applicable income tax treaty between the United States and such non-U.S. holder’s country of residence, or (b) a properly executed IRS Form W-8ECI stating that dividends are not subject to withholding because they are effectively connected with such non-U.S. holder’s conduct of a trade or business within the United States. Non-U.S. holders are urged to consult their tax advisors regarding their entitlement to benefits under a relevant income tax treaty.

A non-U.S. holder that is eligible for a reduced rate of U.S. withholding tax under an income tax treaty may obtain a refund or credit of any excess amounts withheld by timely filing an appropriate claim for refund with the IRS.

Distributions will also be subject to the discussion below under the headings “— Backup Withholding and Information Reporting” and “— Foreign Accounts.”

Dividend Equivalents

Section 871(m) of the Code treats as dividends from sources within the United States, and therefore subject to withholding of U.S. federal income tax at a 30% rate (or such lower applicable treaty rate) certain payments or deemed payments on certain financial instruments to the extent that such payments or deemed payments are contingent upon or determined by reference to U.S.-source dividends. Under U.S. Treasury Regulations promulgated under Section 871(m), certain payments or deemed payments to non-U.S. holders with respect to certain equity-linked instruments that reference U.S. stocks may be treated as dividend equivalents. Under these regulations, withholding may be required even in the absence of any actual dividend related payment or adjustment made pursuant to the terms of the instrument. Under IRS and U.S. Treasury guidance Section 871(m) will apply only to “delta-one” instruments issued prior to 2021. A “delta one” instrument is one in which the ratio of the change in the fair market value of the instrument to the change in the fair market value of the property referenced by the contract is equal to 1.00. We do not believe that the accompanying warrants are delta one instruments. Accordingly, non-U.S. holders of the warrants should not be subject to tax under Section 871(m). Non-U.S. holders should consult with their tax advisors regarding the application of Section 871(m) and the regulations thereunder in respect of their acquisition and ownership of the warrants.

Gain on Sale, Exchange or Other Taxable Disposition of Our Securities

Subject to the discussion below under the headings “— Backup Withholding and Information Reporting” and “— Foreign Accounts,” in general, a non-U.S. holder will not be subject to any U.S. federal income tax on any gain realized upon such non-U.S. holder’s sale, exchange or other taxable disposition of our securities unless:

- the gain is effectively connected with a U.S. trade or business of the non-U.S. holder and, if an applicable income tax treaty so provides, is attributable to a permanent establishment or a fixed base maintained in the United States by such non-U.S. holder, in which case the non-U.S. holder generally will be taxed at the graduated U.S. federal income tax rates applicable to U.S. persons (as defined in the Code) and, if the non-U.S. holder is a foreign corporation, the branch profits tax described above in “— Distributions” also may apply;

- the non-U.S. holder is a nonresident alien individual who is present in the United States for 183 days or more in the taxable year of the disposition and certain other conditions are met, in which case the non-U.S. holder will be subject to a 30% tax (or such lower rate as may be specified by an applicable income tax treaty) on the net gain derived from the disposition, which may be offset by U.S. source capital losses of the non-U.S. holder, if any (even though the individual is not considered a resident of the United States); or
- we are, or have been, at any time during the five-year period preceding such disposition (or the non-U.S. holder's holding period, if shorter) a "U.S. real property holding corporation" in which case such non-U.S. holder generally will be taxed on its net gain derived from the disposition at the graduated U.S. federal income tax rates applicable to U.S. persons (as defined in the Code) and may be subject to withholding at a rate of 15%. Generally, a corporation is a U.S. real property holding corporation only if the fair market value of its U.S. real property interests equals or exceeds 50% of the sum of the fair market value of its worldwide real property interests plus its other assets used or held for use in a trade or business. Although there can be no assurance, we do not believe that we are, or have been, a U.S. real property holding corporation, or that we are likely to become one in the future. Even if we are or become a U.S. real property holding corporation, provided that our common stock is regularly traded, as defined by applicable U.S. Treasury Regulations, on an established securities market, the shares of common stock and shares of common stock underlying the warrants will be treated as a U.S. real property interest only with respect to a non-U.S. holder that holds more than 5% of our outstanding common stock, directly or indirectly, actually or constructively, during the shorter of the 5-year period ending on the date of the disposition or the period that the non-U.S. holder held the shares of our common stock or shares of our common stock underlying the warrants, as applicable. There can be no assurance that our common stock will continue to qualify as regularly traded on an established securities market. Disposition by a non-U.S. holder of our warrants (that are not expected to be regularly traded on an established securities market) may also be eligible for an exemption from withholding even if we are treated as a U.S. real property holding corporation, if on the date such warrants were acquired by such non-U.S. holder such holdings had a fair market value no greater than the fair market value on that date of 5% of our regularly-traded common stock, provided that, if a non-U.S. holder holding our not-regularly-traded warrants subsequently acquires additional warrants, then such interests would be aggregated and valued as of the date of the subsequent acquisition to apply this 5% limitation.

Backup Withholding and Information Reporting

Generally, we must file information returns annually to the IRS in connection with any dividends on our common stock paid to a non-U.S. Holder, regardless of whether any tax was actually withheld. A similar report will be sent to the non-U.S. Holder. Pursuant to applicable income tax treaties or other agreements, the IRS may make these reports available to tax authorities in the non-U.S. Holder's country of residence.

Payments of dividends or of proceeds on the disposition of stock made to a non-U.S. Holder may be subject to additional information reporting and backup withholding at a current rate of 24% unless such non-U.S. Holder establishes an exemption, for example by properly certifying its non-U.S. status on an IRS Form W-8BEN, IRS Form W-8BEN-E, IRS Form W-8ECI, or another appropriate version of IRS Form W-8 (or a successor form). Notwithstanding the foregoing, backup withholding and information reporting may apply if either we or our paying agent has actual knowledge, or reason to know, that a holder is a U.S. person.

Backup withholding is not an additional tax; rather, the U.S. income tax liability of persons subject to backup withholding will be reduced by the amount of tax withheld. If withholding results in an overpayment of taxes, a refund or credit may generally be obtained from the IRS, provided that the required information is furnished to the IRS in a timely manner.

Foreign Account Tax Compliance Act

FATCA imposes withholding tax on certain types of payments made to foreign financial institutions and certain other non-United States entities. The legislation imposes a 30% withholding tax on dividends on or after January 1, 2019, and subject to the discussion of the proposed U.S. Treasury Regulations below, the gross proceeds from the sale or other disposition of, our securities paid to a "foreign financial institution" or

to certain “non-financial foreign entities” (each as defined in the Code), unless (i) the foreign financial institution undertakes certain diligence and reporting obligations, (ii) the non-financial foreign entity either certifies it does not have any “substantial United States owners” (as defined in the Code) or furnishes identifying information regarding each substantial United States owner, or (iii) the foreign financial institution or non-financial foreign entity otherwise qualifies for an exemption from these rules. If the payee is a foreign financial institution and is subject to the diligence and reporting requirements in (i) above, it must enter into an agreement with the U.S. Treasury requiring, among other things, that it undertake to identify accounts held by “specified United States persons” or “United States-owned foreign entities” (each as defined in the Code), annually report certain information about such accounts, and withhold 30% on payments to account holders whose actions prevent it from complying with these reporting and other requirements. If the country in which a payee is resident has entered into an “intergovernmental agreement” with the United States regarding FATCA, that agreement may permit the payee to report to that country rather than to the U.S. Department of the Treasury.

The U.S. Department of the Treasury recently released proposed regulations which, if finalized in their present form, would eliminate the federal withholding tax of 30% applicable to the gross proceeds of a sale or disposition of our securities. In its preamble to the proposed regulations, the U.S. Treasury stated that taxpayers may generally rely on the proposed regulations until final regulations are issued.

Prospective investors should consult their own tax advisors regarding the possible impact of these rules on their investment in our securities, and the possible impact of these rules on the entities through which they hold our securities, including, without limitation, the process and deadlines for meeting the applicable requirements to prevent the imposition of this 30% withholding tax under FATCA.

The preceding discussion of U.S. federal tax considerations is for general information only. It is not tax advice. Each prospective investor should consult its tax advisor regarding the particular U.S. federal, state and local and non-U.S. tax consequences of purchasing, holding and disposing of our securities, including the consequences of any proposed change in applicable laws.

Underwriting

We entered into an underwriting agreement with the underwriters listed below on _____, 2019.

Oppenheimer & Co. Inc. is acting as the sole book-running manager and representative of the underwriters. The underwriting agreement provides for the purchase of a specific number of shares of our common stock and accompanying warrants by each of the underwriters. The underwriters' obligations are several, which means that each underwriter is required to purchase a specified number of shares and accompanying warrants, but is not responsible for the commitment of any other underwriter to purchase shares and accompanying warrants. Subject to the terms and conditions of the underwriting agreement, each underwriter has severally agreed to purchase the number of shares, 15-month warrants and 5-year warrants set forth opposite its name below:

Underwriter	Number of Shares	Number of 15-Month Warrants	Number of 5-Year Warrants
Oppenheimer & Co. Inc.			
Aegis Capital Corporation			
Total	=====	=====	=====

The underwriters have agreed to purchase all of the shares and accompanying warrants offered by this prospectus if any are purchased. Under the underwriting agreement, if an underwriter defaults in its commitment to purchase shares and accompanying warrants, the commitments of non-defaulting underwriters may be increased or the underwriting agreement may be terminated, depending on the circumstances.

The shares of common stock and accompanying warrants offered hereby are expected to be ready for delivery on or about _____, 2019 against payment in immediately available funds.

The underwriters are offering the shares and accompanying warrants subject to various conditions and may reject all or part of any order. The representative of the underwriters has advised us that the underwriters propose to offer the shares and accompanying warrants directly to the public at the combined public offering price per share and accompanying warrants set forth on the cover page of this prospectus. In addition, the representative may offer some of the shares and accompanying warrants to other securities dealers at such price less a concession of \$ _____ per share and accompanying warrants. After the shares and accompanying warrants are released for sale to the public, the representative may change the offering price and other selling terms at various times.

The following table provides information regarding the amount of the discount to be paid to the underwriters by us, before expenses.

	Per Share and Accompanying Warrants	Total
Combined public offering price	\$	\$
Underwriting discount	\$	\$
Proceeds to us (before expenses)	\$	\$

We estimate that our total expenses of the offering, excluding the estimated underwriting discount, will be approximately \$575,000, which includes \$150,000 of fees and expenses for which we have agreed to reimburse the underwriters.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act of 1933.

We and our executive officers and directors have agreed to a 90-day “lock-up” with respect to shares of our common stock and other securities beneficially owned, including securities that are convertible into, or exchangeable or exercisable for, shares of our common stock. Subject to certain exceptions, for a period of 90 days following the date of this prospectus, we and our executive officers and directors may not offer, sell, pledge or otherwise dispose of these securities without the prior written consent of Oppenheimer & Co. Inc.

The underwriters have advised us that they do not intend to conduct any stabilization or over-allotment activities in connection with this offering.

Electronic Delivery of Preliminary Prospectus: A preliminary prospectus in electronic format may be delivered to potential investors by one or more of the underwriters participating in this offering. The preliminary prospectus in electronic format will be identical to the paper version of such preliminary prospectus. Other than the preliminary prospectus in electronic format, the information on any underwriter’s website and any information contained in any other website maintained by an underwriter is not part of this prospectus or the registration statement of which this prospectus forms a part.

The underwriters and their affiliates have provided in the past and may provide from time to time in the future certain commercial banking, financial advisory, investment banking and other services for us and our affiliates in the ordinary course of their business, for which they may receive customary fees and commissions. In addition, from time to time, the underwriters and their affiliates may effect transactions for their own account or the accounts of customers, and hold on behalf of itself or its customers, long or short positions in our debt or equity securities or loans, and may do so in the future.

Oppenheimer & Co. Inc. acted as sole financial advisor in connection with our debt restructuring in November 2018, for which Oppenheimer & Co. Inc. received fees totaling \$750,000 and reimbursement of expenses in the amount of \$583.84. Until September 20, 2019, Oppenheimer & Co. Inc. will have a right of first refusal to act as our exclusive financial advisor in connection with any acquisition or other effort by us to obtain control, directly or indirectly and whether in one or a series of transactions, of all or a significant portion of the assets or securities of a third party, or the sale or other transfer by us, whether in one or a series of transactions, of assets or securities, or any extraordinary corporate transaction, regardless of the form or structure of such transaction. We had also engaged Oppenheimer & Co. Inc. to act as our sole placement agent in connection with a proposed private placement of our securities. We have terminated this private placement as of February 20, 2019.

Notice to Prospective Investors in the European Economic Area

In relation to each member state of the European Economic Area that has implemented the Prospectus Directive (each, a relevant member state), with effect from and including the date on which the Prospectus Directive is implemented in that relevant member state (the relevant implementation date), an offer of our securities described in this prospectus may not be made to the public in that relevant member state other than:

- to any legal entity which is a qualified investor as defined in the Prospectus Directive;
- to fewer than 100 or, if the relevant member state has implemented the relevant provision of the 2010 PD Amending Directive, 150 natural or legal persons (other than qualified investors as defined in the Prospectus Directive), as permitted under the Prospectus Directive, subject to obtaining the prior consent of the relevant Dealer or Dealers nominated by us for any such offer; or
- in any other circumstances falling within Article 3(2) of the Prospectus Directive,

provided that no such offer of shares of our securities shall require us or the underwriters to publish a prospectus pursuant to Article 3 of the Prospectus Directive.

For purposes of this provision, the expression an “offer of securities to the public” in any relevant member state means the communication in any form and by any means of sufficient information on the terms of the offer and our securities to be offered so as to enable an investor to decide to purchase or subscribe for any securities, as the expression may be varied in that member state by any measure implementing the Prospectus Directive in that member state, the expression “Prospectus Directive” means Directive 2003/71/

EC (and amendments thereto, including the 2010 PD Amending Directive, to the extent implemented in the relevant member state) and includes any relevant implementing measure in the relevant member state, and the expression “2010 PD Amending Directive” means Directive 2010/73/EU.

We and the underwriters have not authorized and do not authorize the making of any offer of our securities through any financial intermediary on our or their behalf, other than offers made by the underwriters with a view to the final placement of our securities as contemplated in this prospectus. Accordingly, no purchaser of our securities, other than the underwriters, is authorized to make any further offer of our securities on behalf of us or the underwriters.

Notice to Prospective Investors in the United Kingdom

This prospectus is only being distributed to, and is only directed at, persons in the United Kingdom that are qualified investors within the meaning of Article 2(1)(e) of the Prospectus Directive that are also (i) investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, or the Order, or (ii) high net worth entities, and other persons to whom it may lawfully be communicated, falling within Article 49(2)(a) to (d) of the Order (each such person being referred to as a relevant person).

This prospectus and its contents are confidential and should not be distributed, published or reproduced (in whole or in part) or disclosed by recipients to any other persons in the United Kingdom. Any person in the United Kingdom that is not a relevant person should not act or rely on this document or any of its contents.

Notice to Prospective Investors in Canada

This document constitutes an “exempt offering document” as defined in and for the purposes of applicable Canadian securities laws. No prospectus has been filed with any securities commission or similar regulatory authority in Canada in connection with the offer and sale of the securities described herein (the “Securities”). No securities commission or similar regulatory authority in Canada has reviewed or in any way passed upon this document or on the merits of the Securities and any representation to the contrary is an offence.

Canadian investors are advised that this document has been prepared in reliance on section 3A.3 of National Instrument 33-105 Underwriting Conflicts (“NI 33-105”). Pursuant to section 3A.3 of NI 33-105, this document is exempt from the requirement to provide investors with certain conflicts of interest disclosure pertaining to “connected issuer” and/or “related issuer” relationships as would otherwise be required pursuant to subsection 2.1(1) of NI 33-105.

Resale Restrictions

The offer and sale of the securities in Canada is being made on a private placement basis only and is exempt from the requirement to prepare and file a prospectus under applicable Canadian securities laws. Any resale of Securities acquired by a Canadian investor in this offering must be made in accordance with applicable Canadian securities laws, which may vary depending on the relevant jurisdiction, and which may require resales to be made in accordance with Canadian prospectus requirements, a statutory exemption from the prospectus requirements, in a transaction exempt from the prospectus requirements or otherwise under a discretionary exemption from the prospectus requirements granted by the applicable local Canadian securities regulatory authority. These resale restrictions may under certain circumstances apply to resales of the Securities outside of Canada.

Representations of Purchasers

Each Canadian investor who purchases the securities will be deemed to have represented to the issuer and to each dealer from whom a purchase confirmation is received, as applicable, that the investor (i) is purchasing as principal, or is deemed to be purchasing as principal in accordance with applicable Canadian securities laws, for investment only and not with a view to resale or redistribution; (ii) is an “accredited investor” as such term is defined in section 1.1 of National Instrument 45-106 Prospectus Exemptions (“NI

45-106”) or, in Ontario, as such term is defined in section 73.3(1) of the Securities Act (Ontario); and (iii) is a “permitted client” as such term is defined in section 1.1 of National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations.

Taxation and Eligibility for Investment

Any discussion of taxation and related matters contained in this document does not purport to be a comprehensive description of all of the tax considerations that may be relevant to a Canadian investor when deciding to purchase the securities and, in particular, does not address any Canadian tax considerations. No representation or warranty is hereby made as to the tax consequences to a resident, or deemed resident, of Canada of an investment in the securities or with respect to the eligibility of the securities for investment by such investor under relevant Canadian federal and provincial legislation and regulations.

Rights of Action for Damages or Rescission

Securities legislation in certain of the Canadian jurisdictions provides certain purchasers of securities pursuant to an offering memorandum, including where the distribution involves an “eligible foreign security” as such term is defined in Ontario Securities Commission Rule 45-501 Ontario Prospectus and Registration Exemptions and in Multilateral Instrument 45-107 Listing Representation and Statutory Rights of Action Disclosure Exemptions, as applicable, with a remedy for damages or rescission, or both, in addition to any other rights they may have at law, where the offering memorandum, or other offering document that constitutes an offering memorandum, and any amendment thereto, contains a “misrepresentation” as defined under applicable Canadian securities laws. These remedies, or notice with respect to these remedies, must be exercised or delivered, as the case may be, by the purchaser within the time limits prescribed under, and are subject to limitations and defences under, applicable Canadian securities legislation. In addition, these remedies are in addition to and without derogation from any other right or remedy available at law to the investor.

Language of Documents

Upon receipt of this document, each Canadian investor hereby confirms that it has expressly requested that all documents evidencing or relating in any way to the sale of the Securities described herein (including for greater certainty any purchase confirmation or any notice) be drawn up in the English language only. *Par la réception de ce document, chaque investisseur canadien confirme par les présentes qu’il a expressément exigé que tous les documents faisant foi ou se rapportant de quelque manière que ce soit à la vente des valeurs mobilières décrites aux présentes (incluant, pour plus de certitude, toute confirmation d’achat ou tout avis) soient rédigés en anglais seulement.*

Notice to Prospective Investors in Australia

No prospectus or other disclosure document (as defined in the Corporations Act 2001 (Cth) of Australia, or Corporations Act) in relation to our securities has been or will be lodged with the Australian Securities & Investments Commission, or ASIC. This document has not been lodged with ASIC and is only directed to certain categories of exempt persons. Accordingly, if you receive this document in Australia you confirm and warrant that you are either:

- a “sophisticated investor” under section 708(8)(a) or (b) of the Corporations Act;
- a “sophisticated investor” under section 708(8)(c) or (d) of the Corporations Act and that you have provided an accountant’s certificate to us which complies with the requirements of section 708(8)(c)(i) or (ii) of the Corporations Act and related regulations before the offer has been made;
- a person associated with the company under section 708(12) of the Corporations Act; or
- a “professional investor” within the meaning of section 708(11)(a) or (b) of the Corporations Act, and to the extent that you are unable to confirm or warrant that you are an exempt sophisticated investor, associated person or professional investor under the Corporations Act any offer made to you under this document is void and incapable of acceptance; and

- you warrant and agree that you will not offer any of our securities for resale in Australia within 12 months of those securities being issued unless any such resale offer is exempt from the requirement to issue a disclosure document under section 708 of the Corporations Act.

Notice to Prospective Investors in France

Neither this prospectus nor any other offering material relating to our securities described in this prospectus has been submitted to the clearance procedures of the *Autorité des Marchés Financiers* or of the competent authority of another member state of the European Economic Area and notified to the *Autorité des Marchés Financiers*. These securities have not been offered or sold and will not be offered or sold, directly or indirectly, to the public in France. Neither this prospectus nor any other offering material relating to our securities has been or will be:

- released, issued, distributed or caused to be released, issued or distributed to the public in France; or
- used in connection with any offer for subscription or sale of our securities to the public in France.

Such offers, sales and distributions will be made in France only:

- to qualified investors (*investisseurs qualifiés*) and/or to a restricted circle of investors (*cercle restreint d'investisseurs*), in each case investing for their own account, all as defined in, and in accordance with articles L.411-2, D.411-1, D.411-2, D.734-1, D.744-1, D.754-1 and D.764-1 of the French Code monétaire et financier;
- to investment services providers authorized to engage in portfolio management on behalf of third parties; or
- in a transaction that, in accordance with article L.411-2-II-1°-or-2°-or 3° of the French Code monétaire et financier and article 211-2 of the General Regulations (*Règlement Général*) of the *Autorité des Marchés Financiers*, does not constitute a public offer (*appel public à l'épargne*).

Our securities may be resold directly or indirectly, only in compliance with articles L.411-1, L.411-2, L.412-1 and L.621-8 through L.621-8-3 of the French Code monétaire et financier.

Notice to Prospective Investors in Chile

Our securities are not registered in the Securities Registry (*Registro de Valores*) or subject to the control of the Chilean Securities and Exchange Commission (*Superintendencia de Valores y Seguros de Chile*). This prospectus and other offering materials relating to the offer of the securities do not constitute a public offer of, or an invitation to subscribe for or purchase, the shares in the Republic of Chile, other than to individually identified purchasers pursuant to a private offering within the meaning of Article 4 of the Chilean Securities Market Act (*Ley de Mercado de Valores*) (an offer that is not “addressed to the public at large or to a certain sector or specific group of the public”).

Notice to Prospective Investors in Hong Kong

Our securities may not be offered or sold in Hong Kong by means of any document other than (i) in circumstances which do not constitute an offer to the public within the meaning of the Companies Ordinance (Cap. 32, Laws of Hong Kong), or (ii) to “professional investors” within the meaning of the Securities and Futures Ordinance (Cap. 571, Laws of Hong Kong) and any rules made thereunder, or (iii) in other circumstances which do not result in the document being a “prospectus” within the meaning of the Companies Ordinance (Cap. 32, Laws of Hong Kong) and no advertisement, invitation or document relating to our securities may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the laws of Hong Kong) other than with respect to our securities which are or are intended to be disposed of only to persons outside Hong Kong or only to “professional investors” within the meaning of the Securities and Futures Ordinance (Cap. 571, Laws of Hong Kong) and any rules made thereunder.

Notice to Prospective Investors in the State of Israel

In the State of Israel this prospectus shall not be regarded as an offer to the public to purchase securities under the Israeli Securities Law, 5728-1968, which requires a prospectus to be published and authorized by the Israel Securities Authority, if it complies with certain provisions of Section 15 of the Israeli Securities Law, 5728-1968, including, inter alia, if: (i) the offer is made, distributed or directed to not more than 35 investors, subject to certain conditions (the “Addressed Investors”); or (ii) the offer is made, distributed or directed to certain qualified investors defined in the First Addendum of the Israeli Securities Law, 5728-1968, subject to certain conditions (the “Qualified Investors”). The Qualified Investors shall not be taken into account in the count of the Addressed Investors and may be offered to purchase securities in addition to the 35 Addressed Investors. The company has not and will not take any action that would require it to publish a prospectus in accordance with and subject to the Israeli Securities Law, 5728-1968. We have not and will not distribute this prospectus or make, distribute or direct an offer to subscribe for our securities to any person within the State of Israel, other than to Qualified Investors and up to 35 Addressed Investors.

Qualified Investors may have to submit written evidence that they meet the definitions set out in of the First Addendum to the Israeli Securities Law, 5728-1968. In particular, we may request, as a condition to be offered securities, that Qualified Investors will each represent, warrant and certify to us and/or to anyone acting on our behalf: (i) that it is an investor falling within one of the categories listed in the First Addendum to the Israeli Securities Law, 5728-1968; (ii) which of the categories listed in the First Addendum to the Israeli Securities Law, 5728-1968 regarding Qualified Investors is applicable to it; (iii) that it will abide by all provisions set forth in the Israeli Securities Law, 5728-1968 and the regulations promulgated thereunder in connection with the offer to be issued common stock; (iv) that the securities that it will be issued are, subject to exemptions available under the Israeli Securities Law, 5728-1968: (a) for its own account; (b) for investment purposes only; and (c) not issued with a view to resale within the State of Israel, other than in accordance with the provisions of the Israeli Securities Law, 5728-1968; and (v) that it is willing to provide further evidence of its Qualified Investor status. Addressed Investors may have to submit written evidence in respect of their identity and may have to sign and submit a declaration containing, inter alia, the Addressed Investor’s name, address and passport number or Israeli identification number.

Notice to Prospective Investors in Japan

Our securities offered in this prospectus have not been and will not be registered under the Financial Instruments and Exchange Law of Japan. Our securities have not been offered or sold and will not be offered or sold, directly or indirectly, in Japan or to or for the account of any resident of Japan (including any corporation or other entity organized under the laws of Japan), except (i) pursuant to an exemption from the registration requirements of the Financial Instruments and Exchange Law and (ii) in compliance with any other applicable requirements of Japanese law.

Notice to Prospective Investors in Singapore

This prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of our securities may not be circulated or distributed, nor may our securities be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore, or the SFA, (ii) to a relevant person pursuant to Section 275(1), or any person pursuant to Section 275(1A), and in accordance with the conditions specified in Section 275 of the SFA or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA, in each case subject to compliance with conditions set forth in the SFA.

Where our securities are subscribed or purchased under Section 275 of the SFA by a relevant party which is:

- a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or

- a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

shares, debentures and units of our securities and debentures of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired our securities pursuant to an offer made under Section 275 of the SFA except:

- to an institutional investor (for corporations, under Section 274 of the SFA) or to a relevant person defined in Section 275(2) of the SFA, or to any person pursuant to an offer that is made on terms that such shares, debentures and units of our securities and debentures of that corporation or such rights and interest in that trust are acquired at a consideration of not less than \$200,000 (or its equivalent in a foreign currency) for each transaction, whether such amount is to be paid for in cash or by exchange of securities or other assets, and further for corporations, in accordance with the conditions specified in Section 275 of the SFA;
 - where no consideration is or will be given for the transfer; or
 - where the transfer is by operation of law.
-

Legal Matters

The validity of the shares of common stock and accompanying warrants offered in this prospectus will be passed upon for us by Cooley LLP. Lowenstein Sandler LLP, New York, New York, is acting as counsel for the underwriters in connection with this offering.

Experts

The consolidated financial statements of Outlook Therapeutics, Inc. as of September 30, 2018 and 2017, and for the years then ended, have been incorporated by reference in this prospectus in reliance upon the report of KPMG LLP, independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing. The audit report covering the September 30, 2018 consolidated financial statements contains an explanatory paragraph that states that the Company has incurred recurring losses and negative cash flows from operations and has an accumulated deficit at September 30, 2018 of \$216.3 million, \$13.5 million of senior secured notes that may become due in fiscal 2019 and \$4.6 million of unsecured indebtedness, \$1.0 million of which is due on demand, and \$3.6 million of which matures December 22, 2018, that raise substantial doubt about the Company's ability to continue as a going concern. The consolidated financial statements do not include any adjustments that might result from the outcome of that uncertainty.

Where You Can Find Additional Information

We are a reporting company and file annual, quarterly and current reports, proxy statements and other information with the SEC. We have filed with the SEC a registration statement on Form S-1 under the Securities Act with respect to the common stock being offered by this prospectus. This prospectus does not contain all of the information set forth in the registration statement and the exhibits to the registration statement. For further information, we refer you to the registration statement and the exhibits filed as a part of the registration statement. The SEC maintains an Internet site that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC, including Outlook Therapeutics. The SEC's Internet site can be found at www.sec.gov. We maintain a website at www.outlooktherapeutics.com. Information found on, or accessible through, our website is not a part of, and is not incorporated into, this prospectus, and you should not consider it part of this prospectus.

Incorporation of Documents by Reference

The SEC allows us to incorporate by reference the information we file with it, which means that we can disclose important information to you by referring you to another document that we have filed separately with the SEC. You should read the information incorporated by reference because it is an important part of this prospectus. Information in this prospectus supersedes information incorporated by reference that we filed with the SEC prior to the date of this prospectus, while information that we file later with the SEC will automatically update and supersede the information in this prospectus. We incorporate by reference into this prospectus and the registration statement of which this prospectus is a part the information and documents listed below that we have filed with the SEC (Commission File No. 001-37759):

- our Annual Report on Form 10-K for the fiscal year ended September 30, 2018, filed with the SEC on December 18, 2018;
- our Quarterly Report on Form 10-Q for the quarter ended December 31, 2018, filed with the SEC on February 14, 2019;
- our Current Reports on Form 8-K, filed with the SEC on October 26, 2018, October 30, 2018, November 9, 2018, December 6, 2018, December 18, 2018, January 22, 2019, March 5, 2019, March 18, 2019 and April 5, 2019, to the extent the information in such reports is filed and not furnished; and
- the description of our common stock set forth in our registration statement on Form 8-A, filed with the SEC on April 29, 2016, as amended on May 11, 2016, including any further amendments thereto or reports filed for the purposes of updating this description.

We also incorporate by reference any future filings (other than Current Reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items unless such Form 8-K expressly provides to the contrary) made with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, including those made after the date of the initial filing of the registration statement of which this prospectus is a part and prior to effectiveness of such registration statement, until we file a post-effective amendment that indicates the termination of the offering of the common stock made by this prospectus and will become a part of this prospectus from the date that such documents are filed with the SEC. Information in such future filings updates and supplements the information provided in this prospectus. Any statements in any such future filings will automatically be deemed to modify and supersede any information in any document we previously filed with the SEC that is incorporated or deemed to be incorporated herein by reference to the extent that statements in the later filed document modify or replace such earlier statements.

We will furnish without charge to each person, including any beneficial owner, to whom a prospectus is delivered, upon written or oral request, a copy of any or all of the documents incorporated by reference into this prospectus but not delivered with the prospectus, including exhibits that are specifically incorporated by reference into such documents. You should direct any requests for documents to Outlook Therapeutics, Inc., Attention: Corporate Secretary, 7 Clarke Drive, Cranbury, New Jersey 08512. Our phone number is (609) 619-3990. You may also view the documents that we file with the SEC and incorporate by reference in this prospectus on our corporate website at www.outlooktherapeutics.com. The information on our website is not incorporated by reference and is not a part of this prospectus.



4,091,653 Shares of Common Stock

15-Month Warrants to Purchase up to 4,091,653 Shares of Common Stock
Five-Year Warrants to Purchase up to 4,091,653 Shares of Common Stock

PROSPECTUS

, 2019

Sole Book-Running Manager

Oppenheimer & Co.

Co-Manager

Aegis Capital Corp.

PART II

Information not Required in Prospectus

Item 13. Other Expenses of Issuance and Distribution.

The following table sets forth the expenses to be incurred in connection with the offering described in this Registration Statement, other than the underwriting discount, all which will be paid by the Registrant. All amounts are estimates except the Securities and Exchange Commission, or SEC, registration fee and the Financial Industry Regulatory Authority, Inc., or FINRA, filing fee.

	Amount
SEC registration fee	\$ 9,090
FINRA filing fee	11,750
Accountant's fees and expenses	100,000
Legal fees and expenses	400,000
Transfer and warrant agent's fees and expenses	8,000
Printing and engraving expenses	30,000
Miscellaneous	16,160
Total expenses	\$575,000

Item 14. Indemnification of Directors and Officers.

As permitted by Section 102 of the Delaware General Corporation Law, we have adopted provisions in our amended and restated certificate of incorporation and amended and restated bylaws, each as amended, which limit or eliminate the personal liability of our directors for a breach of their fiduciary duty of care as a director. The duty of care generally requires that, when acting on behalf of the corporation, directors exercise an informed business judgment based on all material information reasonably available to them. Consequently, a director will not be personally liable to us or our stockholders for monetary damages for breach of fiduciary duty as a director, except for liability for:

- any breach of the director's duty of loyalty to us or our stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- any act related to unlawful stock repurchases, redemptions or other distributions or payment of dividends; or
- any transaction from which the director derived an improper personal benefit.

These limitations of liability do not affect the availability of equitable remedies such as injunctive relief or rescission. Our amended and restated certificate of incorporation also authorizes us to indemnify our officers, directors and other agents to the fullest extent permitted under Delaware law.

As permitted by Section 145 of the Delaware General Corporation Law, our amended and restated bylaws, as amended, provide that:

- we may indemnify our directors, officers and employees to the fullest extent permitted by the Delaware General Corporation Law, subject to limited exceptions;
- we may advance expenses to our directors, officers and employees in connection with a legal proceeding to the fullest extent permitted by the Delaware General Corporation Law, subject to limited exceptions; and
- the rights provided in our bylaws are not exclusive.

Our amended and restated certificate of incorporation and bylaws, each as amended, which are filed as Exhibits 3.1 and 3.4, provide for the indemnification provisions described above and elsewhere herein. We have entered into separate indemnification agreements with our directors and officers that may be broader than the specific indemnification provisions contained in the Delaware General Corporation Law. These indemnification agreements generally require us, among other things, to indemnify our officers and directors against liabilities that may arise by reason of their status or service as directors or officers, other than liabilities arising from willful misconduct. These indemnification agreements also generally require us to advance any expenses incurred by the directors or officers as a result of any proceeding against them as to which they could be indemnified. In addition, we have purchased a policy of directors' and officers' liability insurance that insures our directors and officers against the cost of defense, settlement or payment of a judgment in some circumstances. These indemnification provisions and the indemnification agreements may be sufficiently broad to permit indemnification of our officers and directors for liabilities, including reimbursement of expenses incurred, arising under the Securities Act.

Item 15. Recent Sales of Unregistered Securities.

The following is a summary of all securities that we have sold within the past three years without registration under the Securities Act of 1933, as amended, or the "Securities Act".

The following list sets forth information as to all securities we have sold since the preceding three years up to the date of this document, which were not registered under the Securities Act.

- (1) From January 2016 through May 2016, we granted 3,802 RSUs under our 2015 Equity Incentive Plan.
- (2) In May 2016, we issued certain of the accredited investors party to that certain investors' rights agreement dated March 10, 2014, as amended, three-year warrants to purchase an aggregate of 190,033 shares of our common stock at \$0.01 per share. We have issued an aggregate of 88,787 shares upon exercise of such warrants for aggregate gross proceeds of \$3,355.
- (3) In May 2016, concurrent with the closing of our IPO, we sold to an accredited investor in a concurrent private placement 104,166 shares of our common stock, 416,666 of our Series A warrants and 416,666 of our Series B warrants, for an aggregate purchase price of approximately \$5.0 million. The underwriters of our IPO served as placement agents for the private placement and received a placement agent fee of approximately \$350,000.
- (4) In December 2016, we entered into a Note and Warrant Purchase Agreement, which we amended in April 2017 with the accredited investors named therein providing for the issuance and sale of up to \$15.0 million of senior secured promissory notes, which bear interest at a rate of 5% per year and initially mature December 22, 2017, and warrants to acquire up to an aggregate 495,625 shares of our common stock at an initial exercise price of \$24.00 per share, which initially had a five-year term. In October 2017, we exchanged \$1.5 million of these notes for 1.5 million shares of our Series B Convertible preferred stock. All Series B Convertible preferred stock subsequently converted into shares of our common stock in accordance with their terms and are no longer outstanding. We have subsequently amended the terms of the senior secured notes and warrants issued in connection therewith, most recently in November 2018, extending the maturity of the notes date up to December 2019, and providing for conversion into shares of our common stock at \$8.9539 per share, and reducing the exercise price of the warrants to \$12.00 per share and extending expiration date by three years. Through March 19, 2019, we have issued an aggregate of 50,393 shares of our common stock upon conversion of such notes.
- (5) In March 2017, we entered into a Purchase Agreement with the accredited investor named therein providing for the issuance and sale of up to \$15.4 million of shares of our common stock, and up to an additional 28,301 shares of common stock as a commitment fee. In April and May 2017, the accredited purchaser purchased an additional 37,500 shares of common stock for total proceeds of \$659,790.
- (6) In September 2017, we entered into a Purchase Agreement with the accredited investor named therein providing for, between September and October 2017, the issuance and sale of an aggregate of

250,000 shares of our Series A Convertible preferred stock and warrants to acquire 2,093,750 shares of our common stock at an exercise price of \$7.20 per share, which have an eight year term, for an aggregate purchase price of \$25.0 million. All shares of Series A Convertible preferred stock have converted into shares of our common stock and/or been exchanged for Series A-1 Convertible preferred stock. Prior to conversion and/or exchange, we issued an additional aggregate 11,045 shares of Series A Convertible preferred stock as quarterly dividends thereon in accordance with its terms.

- (7) In May 2018, we entered into a Purchase Agreement with the accredited investor named therein, providing for, between May and June 2018, the issuance and sale of an aggregate of 1,594,345 shares of common stock and common stock warrants to purchase 2,564,102 shares of common stock at an exercise price of \$7.80 per share, which have an eight year term, for an aggregate purchase price of approximately \$15.0 million.
- (8) In July 2018, we exchanged all 58,735 outstanding shares of our Series A Convertible preferred stock for 58,735 shares of newly-created Series A-1 Convertible preferred stock, which Series A-1 Convertible preferred stock earns 10% quarterly dividends. Accordingly, we issued 1,468 additional shares on September 30, 2018, 1,505 additional shares on December 31, 2018, and 1,542 additional shares on March 31, 2019, in each case, as dividends thereon.
- (9) In November 2018, we entered into a Purchase Agreement with the accredited investor named therein, pursuant to which we issued and sold an aggregate of 2,680,390 shares of our common stock at \$7.46 per share, for aggregate gross proceeds of \$20.0 million.

We claimed exemption from registration under the Securities Act for the sale and issuance of securities in the transactions described in paragraphs (2)-(9) by virtue of Section 3(a)(9), 4(a)(2) and/or Regulation D promulgated thereunder as transactions not involving any public offering. All of the purchasers of unregistered securities for which we relied on Section 4(a)(2) and/or Regulation D represented that they were accredited investors as defined under the Securities Act. We claimed such exemption on the basis that (i) the purchasers in each case represented that they intended to acquire the securities for investment only and not with a view to the distribution thereof and that they either received adequate information about the registrant or had access, through employment or other relationships, to such information and (ii) appropriate legends were affixed to the stock certificates issued in such transactions.

We claimed exemption from registration under the Securities Act for the sales and issuances of securities in the transactions described in paragraph (1) above under Section 4(a)(2) of the Securities Act in that such sales and issuances did not involve a public offering or under Rule 701 promulgated under the Securities Act, in that they were offered and sold either pursuant to written compensatory plans or pursuant to a written contract relating to compensation, as provided by Rule 701.

Item 16. Exhibits and Financial Statement Schedules

a) Exhibits.

Exhibit No.	Description
1.1*	Form of Underwriting Agreement
3.1	Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to the Registrant's current report on Form 8-K filed with the SEC on May 19, 2016).
3.2	Certificate of Designation of Series A-1 Convertible Preferred Stock (incorporated by reference to Exhibit 3.1 to the Registrant's current report on Form 8-K filed with the SEC on July 19, 2018).
3.3	Certificate of Amendment to the Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to the Registrant's current report on Form 8-K filed with the SEC on December 6, 2018).
3.4	Certificate of Amendment to the Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to the Registrant's current report on Form 8-K filed with the SEC on March 18, 2019).

<u>Exhibit No.</u>	<u>Description</u>
<u>3.5</u>	<u>Amended and Restated Bylaws (incorporated by reference to Exhibit 3.2 to the Registrant's current report on Form 8-K filed with the SEC on May 19, 2016).</u>
<u>3.6</u>	<u>Amendment to the Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 to the Registrant's current report on Form 8-K filed with the SEC on November 29, 2016).</u>
<u>4.1*</u>	<u>Form of Warrant Agreement including form of 15-Month Warrant and form of Five-Year Warrant</u>
<u>5.1*</u>	<u>Opinion of Cooley LLP</u>
<u>10.1</u>	<u>2011 Stock Incentive Plan (incorporated by reference to Exhibit 10.2 to the Registrant's registration statement on Form S-1 (File No. 333-209011) filed with the SEC on January 15, 2016).</u>
<u>10.2</u>	<u>Form of Amended and Restated Performance Stock Unit Agreement for 2011 Stock Incentive Plan (incorporated by reference to Exhibit 10.29 to the Registrant's registration statement on Form S-1 (File No. 333-209011) filed with the SEC on April 27, 2016).</u>
<u>10.3</u>	<u>2015 Equity Incentive Plan, as amended (incorporated by reference to Exhibit 99.1 to the Registrant's current report on Form 8-K filed with the SEC on September 24, 2018).</u>
<u>10.4</u>	<u>Forms of agreements and award grant notices for 2015 Equity Incentive Plan (incorporated by reference to Exhibit 10.4 to the Registrant's registration statement on Form S-1 (File No. 333-209011) filed with the SEC on January 15, 2016).</u>
<u>10.5</u>	<u>2016 Employee Stock Purchase Plan (incorporated by reference to Exhibit 10.5 to the Registrant's registration statement on Form S-1 (File No. 333-209011) filed with the SEC on February 12, 2016).</u>
<u>10.6</u>	<u>Form of Indemnity Agreement, by and between the Registrant and each of its directors and executive officers (incorporated by reference to Exhibit 10.12 to the Registrant's registration statement on Form S-1 (File No. 333-209011) filed with the SEC on January 15, 2016).</u>
<u>10.7</u>	<u>Employment Agreement between the Registrant and Pankaj Mohan, Ph.D. dated February 22, 2016 (incorporated by reference to Exhibit 10.25 to the Registrant's registration statement on Form S-1 (File No. 333-209011) filed with the SEC on April 27, 2016).</u>
<u>10.8</u>	<u>Separation Agreement and Release by and between the Registrant and Pankaj Mohan, Ph.D., dated July 2, 2018 (incorporated by reference to Exhibit 10.5 to the Registrant's quarterly report on Form 10-Q filed with the SEC on August 14, 2018).</u>
<u>10.9</u>	<u>Consulting Agreement and Release by and between the Registrant and Pankaj Mohan, Ph.D., dated July 2, 2018 (incorporated by reference to Exhibit 10.6 to the Registrant's quarterly report on Form 10-Q filed with the SEC on August 14, 2018).</u>
<u>10.10</u>	<u>Executive Employment Agreement between the Registrant and Lawrence A. Kenyon, dated October 22, 2018 (incorporated by reference to Exhibit 10.1 to the Registrant's current report on Form 8-K filed with the SEC on October 26, 2018).</u>
<u>10.11</u>	<u>Employment Agreement between the Registrant and Kenneth Bahrt, M.D., dated February 22, 2016 (incorporated by reference to Exhibit 10.26 to the Registrant's registration statement on Form S-1 (File No. 333-209011) filed with the SEC on April 27, 2016).</u>
<u>10.12</u>	<u>Separation Agreement and Release by and between the Registrant and Stephen J. McAndrew, Ph.D., effective as of November 26, 2018 (incorporated by reference to Exhibit 10.12 to the Registrant's annual report on Form 10-K filed with the SEC on December 18, 2018).</u>
<u>10.13†</u>	<u>Research License Agreement by and between the Registrant and Selexis SA, effective as of October 3, 2011, as amended by Amendment No. 1 dated as of October 9, 2014 (incorporated by reference to Exhibit 10.13 to the Registrant's registration statement on Form S-1 (File No. 333-209011) filed with the SEC on February 26, 2016).</u>
<u>10.14†</u>	<u>ONS-3010 Commercial License Agreement by and between the Registrant and Selexis SA effective as of April 11, 2013, as amended effective as of May 21, 2014 (incorporated by reference to Exhibit 10.14 to the Registrant's registration statement on Form S-1 (File No. 333-209011) filed with the SEC on January 15, 2016).</u>

<u>Exhibit No.</u>	<u>Description</u>
<u>10.15†</u>	<u>ONS-1045 Commercial License Agreement by and between the Registrant and Selexis SA effective as of April 11, 2013, as amended effective as of May 21, 2014 (incorporated by reference to Exhibit 10.15 to the Registrant's registration statement on Form S-1 (File No. 333-209011) filed with the SEC on January 15, 2016).</u>
<u>10.16†</u>	<u>ONS-1050 Commercial License Agreement by and between the Registrant and Selexis SA effective as of April 11, 2013, as amended effective as of May 21, 2014 (incorporated by reference to Exhibit 10.16 to the Registrant's registration statement on Form S-1 (File No. 333-209011) filed with the SEC on January 15, 2016).</u>
<u>10.17</u>	<u>Joint Participation Agreement by and between the Registrant and Zhejiang Huahai Pharmaceutical Co., Ltd., effective as of May 6, 2013, as amended by that Amendment No. 1 and Mutual Termination Agreement re: Joint Participation Agreement, dated December 23, 2014 (incorporated by reference to Exhibit 10.17 to the Registrant's registration statement on Form S-1 (File No. 333-209011) filed with the SEC on January 15, 2016).</u>
<u>10.18†</u>	<u>Strategic Partnership Agreement by and between the Registrant and MTTR, LLC, effective as of February 15, 2018, as amended by the Letter Addendum dated March 2, 2018 (incorporated by reference to Exhibit 10.18 to the Registrant's annual report on Form 10-K filed with the SEC on December 18, 2018).</u>
<u>10.19</u>	<u>Lease Agreement by and between the Registrant and Cedar Brook 7 Corporate Center, LP, dated as of March 18, 2011 (incorporated by reference to Exhibit 10.18 to the Registrant's registration statement on Form S-1 (File No. 333-209011) filed with the SEC on January 15, 2016).</u>
<u>10.20</u>	<u>First Amendment to Lease Agreement by and between the Registrant and Cedar Brook 7 Corporate Center, LP, dated as of December 2013 (incorporated by reference to Exhibit 10.19 to the Registrant's registration statement on Form S-1 (File No. 333-209011) filed with the SEC on January 15, 2016).</u>
<u>10.21</u>	<u>Second Amendment to Lease Agreement by and between the Registrant and Cedar Brook 7 Corporate Center, LP, dated as of July 18, 2014 (incorporated by reference to Exhibit 10.20 to the Registrant's registration statement on Form S-1 (File No. 333-209011) filed with the SEC on January 15, 2016).</u>
<u>10.22</u>	<u>Third Amendment to Lease Agreement by and between the Registrant and Cedar Brook 7 Corporate Center, LP, dated as of January 16, 2015 (incorporated by reference to Exhibit 10.21 to the Registrant's registration statement on Form S-1 (File No. 333-209011) filed with the SEC on January 15, 2016).</u>
<u>10.23</u>	<u>Fourth Amendment to Lease Agreement by and between the Registrant and Cedar Brook 7 Corporate Center, LP, dated as of February 9, 2015 (incorporated by reference to Exhibit 10.22 to the Registrant's registration statement on Form S-1 (File No. 333-209011) filed with the SEC on January 15, 2016).</u>
<u>10.24</u>	<u>Fifth Amendment to Lease Agreement by and between the Registrant and Cedar Brook 7 Corporate Center, LP, dated as of September 26, 2015 (incorporated by reference to Exhibit 10.23 to the Registrant's registration statement on Form S-1 (File No. 333-209011) filed with the SEC on January 15, 2016).</u>
<u>10.25</u>	<u>Sixth Amendment to Lease Agreement by and between the Registrant and Cedar Brook 7 Corporate Center, LP, dated as of February 1, 2018 (incorporated by reference to Exhibit 10.1 to the Registrant's current report on Form 8-K filed with the SEC on February 7, 2018).</u>
<u>10.26</u>	<u>Lease Termination Agreement by and between the Registrant and Cedar Brook East Corporate Center, LP, dated as of August 28, 2018 (incorporated by reference to Exhibit 10.26 to the Registrant's annual report on Form 10-K filed with the SEC on December 18, 2018).</u>
<u>10.27</u>	<u>Form of Warrant to Purchase Common Stock (incorporated by reference to Exhibit 10.30 to the Registrant's registration statement on Form S-1 (File No. 333-209011) filed with the SEC on May 11, 2016).</u>

<u>Exhibit No.</u>	<u>Description</u>
<u>10.28</u>	<u>Securities Purchase Agreement between the Registrant and Sabby Healthcare Master Fund Ltd., dated May 11, 2016 (incorporated by reference to Exhibit 10.1 to the Registrant's current report on Form 8-K filed with the SEC on May 19, 2016).</u>
<u>10.29</u>	<u>Warrant Agreement by and between the Registrant and American Stock Transfer & Trust Company LLC, as Warrant Agent dated May 18, 2016 (incorporated by reference to Exhibit 10.4 to the Registrant's Quarterly Report on Form 10-Q filed with the SEC on June 27, 2016).</u>
<u>10.30</u>	<u>Amendment to the Warrant Agreement dated May 18, 2016 by the Registrant and American Stock Transfer & Trust Company LLC, as Warrant Agent, dated February 6, 2017 (incorporated by reference to Exhibit 10.1 to the Registrant's current report on Form 8-K filed with the SEC on February 6, 2017).</u>
<u>10.31</u>	<u>Amendment #2 to the Warrant Agreement dated May 18, 2016 by and between the Registrant and American Stock Transfer & Trust Company LLC, as Warrant Agent, dated February 9, 2018 (incorporated by reference to Exhibit 10.1 to the Registrant's current report on Form 8-K filed with the SEC on February 9, 2018).</u>
<u>10.32</u>	<u>Amendment #3 to the Warrant Agreement dated May 18, 2016 by and between the Registrant and American Stock Transfer & Trust Company LLC, as Warrant Agent, dated January 22, 2019 (incorporated by reference to Exhibit 10.1 to the Registrant's current report on Form 8-K filed with the SEC on January 22, 2019).</u>
<u>10.33</u>	<u>Form of Series A warrant certificate (included in Exhibit A to Exhibit 10.29).</u>
<u>10.34</u>	<u>Note and Warrant Purchase Agreement by and between the Registrant and the Purchasers named therein dated December 22, 2016 (incorporated by reference to Exhibit 10.1 to the Registrant's current report on Form 8-K filed with the SEC on December 23, 2016).</u>
<u>10.35</u>	<u>First Amendment to Note and Warrant Purchase Agreement by and the Registrant and the Noteholders named therein, dated April 13, 2017 (incorporated by reference to Exhibit 10.1 to the Registrant's current report on Form 8-K filed with the SEC on April 17, 2017).</u>
<u>10.36</u>	<u>Note, Warrant and Registration Rights Amendment and Waiver, dated September 7, 2017 (incorporated by reference to Exhibit 10.9 to the Registrant's current report on Form 8-K filed with the SEC on September 11, 2017).</u>
<u>10.37</u>	<u>Second Note and Warrant Amendment and Waiver, dated November 5, 2018 (incorporated by reference to Exhibit 10.3 to the Registrant's current report on Form 8-K filed with the SEC on November 9, 2018).</u>
<u>10.38</u>	<u>Form of Senior Secured Promissory Note (included as Exhibit A to the Note and Warrant Purchase Agreement filed as Exhibit 10.34).</u>
<u>10.39</u>	<u>Form of Warrant (included as Exhibit B to the Note and Warrant Purchase Agreement filed as Exhibit 10.34).</u>
<u>10.40</u>	<u>Security Agreement by and between the Registrant and the Secured Parties named therein dated December 22, 2016 (incorporated by reference to Exhibit 10.4 to the Registrant's current report on Form 8-K filed with the SEC on December 23, 2016).</u>
<u>10.41</u>	<u>Intellectual Property Security Agreement by and between the Registrant and the Secured Parties named therein dated December 22, 2016 (incorporated by reference to Exhibit 10.5 to the Registrant's current report on Form 8-K filed with the SEC on December 23, 2016).</u>
<u>10.42</u>	<u>Registration Rights Agreement by and among the Registrant and the Investors named therein, dated February 3, 2017 (incorporated by reference to Exhibit 10.1 to the Registrant's current report on Form 8-K filed with the SEC on February 3, 2017).</u>
<u>10.43</u>	<u>Purchase and Exchange Agreement by and between the Registrant and the Noteholders named therein, dated September 7, 2017 (incorporated by reference to Exhibit 10.2 to the Registrant's current report on Form 8-K filed with the SEC on September 11, 2017).</u>
<u>10.44</u>	<u>Purchase Agreement by and between the Registrant and Lincoln Park Capital Fund, LLC, dated March 8, 2017 (incorporated by reference to Exhibit 10.1 to the Registrant's current report on Form 8-K filed with the SEC on March 9, 2017).</u>

Exhibit No.	Description
10.45	Registration Rights Agreement by and between the Registrant and Lincoln Park Capital Fund, LLC, dated March 8, 2017 (incorporated by reference to Exhibit 10.2 to the Registrant's current report on Form 8-K filed with the SEC on March 9, 2017).
10.46	Purchase Agreement by and between the Registrant and BioLexis Pte. Ltd. (formerly GMS Tenshi Holdings Pte. Limited), dated September 7, 2017 (incorporated by reference to Exhibit 10.1 to the Registrant's current report on Form 8-K filed with the SEC on September 11, 2017).
10.47	Form of Warrant to Purchase Common Stock of the Registrant (incorporated by reference to Exhibit 4.1 to the Registrant's current report on Form 8-K filed with the SEC on September 11, 2017).
10.48	Investor Rights Agreement by and between the Registrant and BioLexis Pte. Ltd. (formerly GMS Tenshi Holdings Pte. Limited), dated September 11, 2017 (incorporated by reference to Exhibit 10.3 to the Registrant's current report on Form 8-K filed with the SEC on September 11, 2017).
10.49	Amendment to Investor Rights Agreement by and between the Registrant and BioLexis Pte. Ltd. (formerly GMS Tenshi Holdings Pte. Limited), dated May 11, 2018 (incorporated by reference to Exhibit 10.2 to the Registrant's current report on Form 8-K filed with the SEC on May 15, 2018).
10.50	Second Amendment to Investor Rights Agreement by and between the Registrant, and BioLexis Pte. Ltd. (formerly GMS Tenshi Holdings Pte. Limited), dated July 18, 2018 (incorporated by reference to Exhibit 10.2 to the Registrant's current report on Form 8-K filed with the SEC on July 19, 2018).
10.51	Third Amendment to Investor Rights Agreement by and between the Registrant and BioLexis Pte. Ltd., dated November 5, 2018 (incorporated by reference to Exhibit 10.2 to the Registrant's current report on Form 8-K filed with the SEC on November 9, 2018).
10.52	Purchase Agreement by and between the Registrant and BioLexis Pte. Ltd. (formerly GMS Tenshi Holdings Pte. Limited), dated May 11, 2018 (incorporated by reference to Exhibit 10.1 to the Registrant's current report on Form 8-K filed with the SEC on May 15, 2018).
10.53	Form of Warrant to Purchase Common Stock of the Registrant (incorporated by reference to Exhibit 4.1 to the Registrant's current report on Form 8-K filed with the SEC on May 15, 2018).
10.54	Term Sheet, Convertible Preferred Equity Investment in the Registrant by and between the Registrant and BioLexis Pte. Ltd. (formerly GMS Tenshi Holdings Pte. Limited), dated June 20, 2018 (incorporated by reference to Exhibit 10.4 to the Registrant's quarterly report on Form 10-Q filed with the SEC on August 14, 2018).
10.55	Exchange Agreement by and between the Registrant and BioLexis Pte. Ltd. (formerly GMS Tenshi Holdings Pte. Limited), dated July 18, 2018 (incorporated by reference to Exhibit 10.1 to the Registrant's current report on Form 8-K filed with the SEC on July 19, 2018).
10.56	Purchase Agreement by and between the Registrant and BioLexis Pte. Ltd. (formerly GMS Tenshi Holdings Pte. Limited), dated November 5, 2018 (incorporated by reference to Exhibit 10.1 to the Registrant's current report on Form 8-K filed with the SEC on November 9, 2018).
23.1*	Consent of independent registered public accounting firm.
23.2*	Consent of Cooley LLP (included in Exhibit 5.1).
24.1	Power of Attorney (included on signature page to the original filing of this registration statement).

* Filed herewith

† Confidential treatment has been granted for certain information contained in this document pursuant to an order of the SEC. Such information (indicated by asterisks) has been omitted and been filed separately with the SEC.

b) Financial Statement Schedules

No financial statement schedules are provided because the information called for is not required or is shown either in the financial statements or notes.

Item 17. Undertakings

The undersigned registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
 - (i) To include any prospectus required by Section 10(a)(3) of the Securities Act;
 - (ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement;
 - (iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

provided, however, that paragraphs (a)(1)(i), (ii), and (iii) of this section do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to section 13 or section 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m or 78o(d)) that are incorporated by reference in the registration statement.

- (2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
- (4) The undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:
 - (i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;
 - (ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;
 - (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and
 - (iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.

- (5) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.
- (6) For purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b) (1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.
- (7) For the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this Amendment No. 4 to registration statement on Form S-1 to be signed on its behalf by the undersigned, thereunto duly authorized, in Cranbury, New Jersey, on April 9, 2019.

OUTLOOK THERAPEUTICS, INC.

By: /s/ Lawrence A. Kenyon

Lawrence A. Kenyon
*President, Chief Executive Officer and Chief
Financial Officer*

Pursuant to the requirements of the Securities Act of 1933, this Amendment No. 4 to the registration statement on Form S-1 has been signed by the following persons in the capacities and on the dates indicated.

Signatures	Title	Date
* _____ Ralph H. Thurman	Executive Chairman	April 9, 2019
/s/ Lawrence A. Kenyon _____ Lawrence A. Kenyon	President and Chief Executive Officer, Chief Financial Officer, Treasurer, Secretary and Director <i>(Principal Executive, Financial and Accounting Officer)</i>	April 9, 2019
* _____ Yezan Haddadin	Director	April 9, 2019
* _____ Kurt J. Hilzinger	Director	April 9, 2019
* _____ Pankaj Mohan, Ph.D.	Director	April 9, 2019
* _____ Faisal G. Sukhtian	Director	April 9, 2019
* _____ Joe Thomas	Director	April 9, 2019
* _____ Joerg Windisch, Ph.D.	Director	April 9, 2019
* By: /s/ Lawrence A. Kenyon _____ Lawrence A. Kenyon Attorney-in-Fact		

OUTLOOK THERAPEUTICS, INC.

[●] Shares of Common Stock
15-Month Warrants to Purchase up to [●] Shares of Common Stock
Five-Year Warrants to Purchase up to [●] Shares of Common Stock

UNDERWRITING AGREEMENT

_____, 2019

Oppenheimer & Co. Inc.
as Representative of the several
Underwriters named in Schedule I hereto
c/o Oppenheimer & Co. Inc.
85 Broad Street
New York, New York 10004

Ladies and Gentlemen:

Outlook Therapeutics, Inc., a Delaware corporation (the “Company”), proposes, subject to the terms and conditions contained in this Underwriting Agreement (the “Agreement”), to sell to you and the other underwriters named on Schedule I to this Agreement (the “Underwriters”), for whom you are acting as Representative (the “Representative”), an aggregate of (i) [●] shares (the “Shares”) of the Company’s common stock, \$0.01 par value per share (the “Common Stock”), (ii) 15-Month Warrants (the “15-Month Warrants”) to purchase up to an aggregate of [●] shares of Common Stock (the “15-Month Warrant Shares”) and (iii) Five-Year Warrants (the “Five-Year Warrants” and, collectively with the 15-Month Warrants, the “Warrants”) to purchase up to an aggregate of [●] shares of Common Stock (the “Five-Year Warrant Shares” and, collectively with the 15-Month Warrant Shares, the “Warrant Shares”). The respective amounts of the Shares and Warrants to be purchased by each of the several Underwriters are set forth opposite their names on Schedule I hereto. The Shares, the Warrants and the Warrant Shares are collectively called the “Securities.”

The Warrants will be issued pursuant to the terms of a Warrant Agreement, dated the Closing Date (as defined below) (the “Warrant Agreement”), to be entered into by and between the Company and American Stock Transfer & Trust Company, LLS, as Warrant Agent (the “Warrant Agent”).

The Shares and the Warrants will be issued in a fixed combination of one Share, one 15-Month Warrant to purchase one 15-Month Warrant Share and one Five-Year Warrant to purchase one Five-Year Warrant Share. The Shares and Warrants will be sold together but will be immediately separable and transferable upon issuance.

The Company has prepared and filed in conformity with the requirements of the Securities Act of 1933, as amended (the “Securities Act”), and the published rules and regulations thereunder (the “Rules”) adopted by the Securities and Exchange Commission (the “Commission”) a Registration Statement (as hereinafter defined), including a Preliminary Prospectus (as hereinafter defined) relating to the Securities, and such amendments thereof as may have been required to the date of this Agreement. Copies of such Registration Statement (including all amendments thereof) and of the related Preliminary Prospectus have heretofore been delivered by the Company to the Underwriters. The term “Preliminary Prospectus” means any preliminary prospectus included at any time as a part of the Registration Statement or filed with the Commission by the Company pursuant to Rule 424(a) of the Rules. The term “Registration Statement” as used in this Agreement means the initial registration statement on Form S-1 (No. 333-229761) (including all exhibits, financial schedules and all documents and information deemed to be a part of the Registration Statement through incorporation by reference or otherwise), as amended at the time and on the date it becomes effective (the “Effective Date”), including the information (if any) contained in the final prospectus filed with the Commission pursuant to Rule 424(b) of the Rules and deemed to be part thereof at the time of effectiveness pursuant to Rule 430A of the Rules. If the Company has filed an abbreviated registration statement to register additional Securities pursuant to Rule 462(b) under the Rules (the “462(b) Registration Statement”), then any reference herein to the Registration Statement shall also be deemed to include such 462(b) Registration Statement. The term “Prospectus” as used in this Agreement means the final prospectus filed with the Commission pursuant to and within the time limits described in Rule 430A and 424(b) of the Rules. Unless otherwise stated herein, any reference herein to the Registration Statement, any Preliminary Prospectus, the Statutory Prospectus (as hereinafter defined) and the Prospectus shall be deemed to refer to and include the documents incorporated by reference therein, including pursuant to Item 12 of Form S-1 under the Securities Act, which were filed under the Securities Exchange Act of 1934, as amended (the “Exchange Act”), on or before the date hereof or are so filed hereafter. Any reference herein to the terms “amend,” “amendment” or “supplement” with respect to the Registration Statement, any Preliminary Prospectus, the Statutory Prospectus or the Prospectus shall be deemed to refer to and include any such document filed or to be filed under the Exchange Act after the date of the Registration Statement, any such Preliminary Prospectus, the Statutory Prospectus or Prospectus, as the case may be, and deemed to be incorporated therein by reference.

The Company understands that the Underwriters propose to make a public offering of the Shares and Warrants, as set forth in and pursuant to the Statutory Prospectus and the Prospectus, as soon after the Effective Date and the date of this Agreement as the Representative deems advisable. The Company hereby confirms that the Underwriters and dealers have been authorized to distribute or cause to be distributed each Preliminary Prospectus, and each Issuer Free Writing Prospectus (as hereinafter defined) and are authorized to distribute the Prospectus (as from time to time amended or supplemented if the Company furnishes amendments or supplements thereto to the Underwriters).

1. Sale, Purchase, Delivery and Payment for the Shares and Warrants. On the basis of the representations, warranties and agreements contained in, and subject to the terms and conditions of, this Agreement:

(a) The Company agrees to issue and sell to each of the Underwriters, and each of the Underwriters agrees, severally and not jointly, to purchase from the Company, at a combined purchase price of \$[●] per share and accompanying Warrants (the “Initial Price”), (i) the number of Shares set forth opposite the name of such Underwriter under the column “Number of Shares to be Purchased from the Company” on Schedule I to this Agreement, (ii) the number of 15-Month Warrants set forth opposite the name of such Underwriter under the column “Number of 15-Month Warrants to be Purchased from the Company” on Schedule I to this Agreement, and (iii) the number of Five-Year Warrants set forth opposite the name of such Underwriter under the column “Number of Five-Year Warrants to be Purchased from the Company” on Schedule I to this Agreement, subject to adjustment in accordance with Section 8 hereof.

(b) Payment of the purchase price for, and delivery of the Shares and the Warrants shall be made at the offices of Oppenheimer & Co. Inc., 85 Broad Street, New York, New York 10004, at 10:00 a.m., New York City time, on April [●] 2019, or at such time on such other date, not later than ten (10) business days after the date of this Agreement, as shall be agreed upon by the Company and the Representative (such time and date of delivery and payment are called the “Closing Date”).

(c) Payment shall be made to the Company by wire transfer of immediately available funds or by certified or official bank check or checks payable in New York Clearing House (same day) funds drawn to the order of the Company against delivery of the Shares and the Warrants to the account of the Representative for the respective accounts of the Underwriters for the Shares and Warrants to be purchased by them.

(d) The Shares and the Warrants shall be registered in such names and shall be in such denominations as the Representative shall request at least one full business day before the Closing Date and shall be delivered by or on behalf of the Company to the Representative through the facilities of the Depository Trust Company (“DTC”) for the respective accounts of the Underwriters.

2. Representations and Warranties of the Company. The Company represents and warrants to each Underwriter as of the date hereof and as of the Closing Date as follows:

(a) On the Effective Date, the Registration Statement complied, and on the date of the Prospectus, the date any post-effective amendment to the Registration Statement becomes effective, the date any supplement or amendment to the Prospectus is filed with the Commission and each Closing Date, the Registration Statement, the Prospectus (and any amendment thereof or supplement thereto) will comply, in all material respects, with the requirements of the Securities Act, the Rules, the Exchange Act and the rules and regulations of the Commission thereunder. The Registration Statement did not, as of the Effective Date, contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary in order to make the statements therein not misleading; and on the Effective Date and the other dates referred to above neither the Registration Statement nor the Prospectus, nor any amendment thereof or supplement thereto, will contain any untrue statement of a material fact or will omit to state any material fact required to be stated therein or necessary in order to make the statements therein not misleading. When any Preliminary Prospectus was first filed with the Commission (whether filed as part of the Registration Statement or any amendment thereto or pursuant to Rule 424(a) of the Rules) and when any amendment thereof or supplement thereto was first filed with the Commission, such Preliminary Prospectus as amended or supplemented complied in all material respects with the applicable provisions of the Securities Act and the Rules and did not contain any untrue statement of a material fact or omit to state any 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. If applicable, each Preliminary Prospectus and the Prospectus delivered to the Underwriters for use in connection with this offering was identical to the electronically transmitted copies thereof filed with the Commission pursuant to EDGAR, except to the extent permitted by Regulation S-T. Notwithstanding the foregoing, none of the representations and warranties in this paragraph 2(a) shall apply to statements in, or omissions from, the Registration Statement, any Preliminary Prospectus or the Prospectus made in reliance upon, and in conformity with, information herein or otherwise furnished in writing by the Representative on behalf of the several Underwriters specifically for use in the Registration Statement, any Preliminary Prospectus or the Prospectus, as the case may be. With respect to the preceding sentence, the Company acknowledges that the only information furnished in writing by the Representative on behalf of the several Underwriters for use in the Registration Statement, any Preliminary Prospectus or the Prospectus is the statements contained in the fifth and eleventh paragraphs under the caption “Underwriting” in the Prospectus (collectively, the “Underwriter Information”).

(b) As of the Applicable Time (as hereinafter defined), none of (i) the price to the public and the number of Shares and Warrants offered and sold, as indicated on the cover page of the Prospectus and the Statutory Prospectus, all considered together (collectively, the “General Disclosure Package”), and (ii) any individual Issuer Free Writing Prospectus when considered together with the General Disclosure Package, when considered together with the General Disclosure Package, included, includes or will include any untrue statement of a material fact or omitted, omits or will omit to state any 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; provided, however, that this representation and warranty shall not apply to statements in or omissions in the General Disclosure Package made in reliance upon and in conformity with the Underwriter Information.

Each Issuer Free Writing Prospectus (as hereinafter defined), including any electronic road show (including without limitation any “bona fide electronic road show” as defined in Rule 433(h)(5) under the Securities Act) (each, a “Road Show”) (i) is identified in Schedule III hereto and (ii) complied when issued, and complies, in all material respects with the requirements of the Securities Act and the Rules and the Exchange Act and the rules and regulations of the Commission thereunder.

As used in this Section and elsewhere in this Agreement:

“Applicable Time” means [] a.m. (Eastern time) on the date of this Agreement.

“Statutory Prospectus” as of any time means the Preliminary Prospectus relating to the Securities that is included in the Registration Statement immediately prior to the Applicable Time, including any document incorporated by reference therein.

“Issuer Free Writing Prospectus” means each “free writing prospectus” (as defined in Rule 405 of the Rules) prepared by or on behalf of the Company or used or referred to by the Company in connection with the offering of the Securities, including, without limitation, each Road Show.

(c) 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 any Preliminary Prospectus, the Prospectus or any “free writing prospectus”, as defined in Rule 405 under the Rules, has been issued by the Commission and no proceedings for that purpose have been instituted or are threatened under the Securities Act. Any required filing of any Preliminary Prospectus and/or the Prospectus and any supplement thereto pursuant to Rule 424(b) of the Rules has been or will be made in the manner and within the time period required by such Rule 424(b). Any material required to be filed by the Company pursuant to Rule 433(d) or Rule 163(b)(2) of the Rules has been or will be made in the manner and within the time period required by such Rules.

(d) The documents incorporated by reference in the Registration Statement, any Preliminary Prospectus and the Prospectus, at the time they became effective or were filed with the Commission, as the case may be, complied in all material respects with the requirements of the Securities Act or the Exchange Act, as applicable, and the rules and regulations of the Commission thereunder, and none of such documents contained an 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, and any further documents so filed and incorporated by reference in the Registration Statement, any Preliminary Prospectus and the Prospectus, when such documents become effective or are filed with the Commission, as the case may be, will conform in all material respects to the requirements of the Securities Act or the Exchange Act, as applicable, and the rules and regulations of the Commission thereunder and will not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they are made, not misleading.

(e) Each Issuer Free Writing Prospectus, if any, as of its issue date and at all subsequent times through the completion of the public offer and sale of the Shares and Warrants or until any earlier date that the Company notified or notifies the Representative as described in the next sentence, did not, does not and will not include any information that conflicted, conflicts or will conflict with the information contained in the Registration Statement, including any document incorporated by reference therein that has not been superseded or modified, the Statutory Prospectus or the Prospectus.

If at any time following issuance of an Issuer Free Writing Prospectus there occurred or occurs an event or development as a result of which such Issuer Free Writing Prospectus conflicted or would conflict with the information contained in the Registration Statement, the Statutory Prospectus or the Prospectus or included or would include an untrue statement of a material fact or omitted or would 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 prevailing at the subsequent time, not misleading, the Company has promptly notified or will promptly notify the Representative and has promptly amended or will promptly amend or supplement, at its own expense, such Issuer Free Writing Prospectus to eliminate or correct such conflict, untrue statement or omission.

(f) The financial statements of the Company (including all notes and schedules thereto) included in the Registration Statement, the Statutory Prospectus and Prospectus present fairly, in all material respects, the financial position of the Company and its consolidated subsidiaries at the dates indicated and the statements of operations, stockholders' equity (deficit) and statements of cash flows of the Company and its consolidated subsidiaries for the periods specified; and such financial statements and related schedules and notes thereto, and the unaudited financial information filed with the Commission as part of the Registration Statement, have been prepared in conformity with generally accepted accounting principles ("GAAP"), consistently applied throughout the periods involved. The summary and selected financial data included in the Statutory Prospectus and Prospectus present fairly, in all material respects, the information shown therein as at the respective dates and for the respective periods specified and have been presented on a basis consistent with the consolidated financial statements set forth in the Prospectus and other financial information. The pro forma financial statements and the related notes thereto included in the Registration Statement, the Statutory Prospectus and the Prospectus present fairly, in all material respects, the information shown therein, have been prepared in accordance with the Commission's rules and guidelines with respect to pro forma financial statements and have been properly compiled on the bases described therein, and the assumptions used in the preparation thereof are reasonable and the adjustments used therein are appropriate to give effect to the transactions and circumstances referred to therein.

(g) KPMG LLP (the "Auditor") whose reports are filed with the Commission as a part of the Registration Statement, are and, during the periods covered by their reports, were independent public accountants with respect to the Company as required by the Securities Act and the Rules.

(h) The Company and each of its subsidiaries, including each entity (corporation, partnership, joint venture, association or other business organization) controlled directly or indirectly by the Company (each, a "subsidiary"), are duly organized, validly existing and in good standing under the laws of their respective jurisdictions of incorporation or organization and each such entity has all requisite power and authority to carry on its business as is currently being conducted as described in the Statutory Prospectus and the Prospectus, and to own, lease and operate its properties. All of the issued shares of capital stock of, or other ownership interests in, each subsidiary have been duly and validly authorized and issued and are fully paid and non-assessable and are owned, directly or indirectly, by the Company, free and clear of any lien, charge, mortgage, pledge, security interest, claim, limitation on voting rights, equity, trust or other encumbrance, preferential arrangement, defect or restriction of any kind whatsoever, except as disclosed in the Registration Statement, the Statutory Prospectus or the Prospectus. The Company and each of its subsidiaries is duly qualified to do business and is in good standing as a foreign corporation in each jurisdiction in which the nature of the business conducted by it or location of the assets or properties owned, leased or licensed by it requires such qualification, except for such jurisdictions where the failure to so qualify individually or in the aggregate would not have a material adverse effect on the assets, properties, condition, financial or otherwise, or in the results of operations, business affairs or business prospects of the Company and its subsidiaries considered as a whole (a "Material Adverse Effect"); and to the Company's knowledge, 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.

(i) The Company and each of its subsidiaries has all requisite corporate power and authority, and all necessary authorizations, approvals, consents, orders, licenses, certificates and permits of and from all governmental or regulatory bodies or any other person or entity (collectively, the “Permits”), to own, lease and license its assets and properties and conduct its business, all of which are valid and in full force and effect, except where the lack of such Permits, individually or in the aggregate, would not have a Material Adverse Effect. The Company and each of its subsidiaries has fulfilled and performed, in all material respects, all of its obligations with respect to such Permits and no event has occurred that allows, or after notice or lapse of time would allow, revocation or termination thereof or results in any other material impairment of the rights of the Company thereunder. Except as may be required under the Securities Act and state and foreign Blue Sky laws, no other Permits are required to enter into, deliver and perform this Agreement and to issue and sell the Shares and Warrants.

(j) (i) At the time of filing the Registration Statement, and (ii) as of the date hereof, the Company was not and is not an “ineligible issuer,” as defined in Rule 405 of the Rules, including (but not limited to) the Company or any other subsidiary in the preceding three years not having been convicted of a felony or misdemeanor or having been made the subject of a judicial or administrative decree or order as described in Rule 405 of the Rules.

(k) The Company and each of its subsidiaries owns or possesses legally enforceable rights to use all patents, patent applications, inventions, trademarks, trademark applications, trade names, service marks, copyrights, copyright applications, licenses, know-how and other similar intellectual property rights and proprietary knowledge (collectively, “Intangibles”) necessary for the conduct of its business as now conducted or as proposed to be conducted, as described in the Registration Statement, General Disclosure Package and Prospectus. Neither the Company nor any of its subsidiaries has received any written notice of, nor is it aware of, any infringement of or conflict with asserted rights of others with respect to any Intangibles.

(l) The Company and each of its subsidiaries has good and marketable title in fee simple to all real property, and good and marketable title to all other property owned by it (excluding Intangibles referenced in (k) above), in each case free and clear of all liens, encumbrances, claims, security interests and defects, except as disclosed in the Registration Statement, the Statutory Prospectus and the Prospectus and such as do not materially affect the value of such property and do not materially interfere with the use made or proposed to be made of such property by the Company and its subsidiaries. All property held under lease by the Company and its subsidiaries is held by them under valid, existing and enforceable leases, free and clear of all liens, encumbrances, claims, security interests and defects, except as disclosed in the Registration Statement, the Statutory Prospectus or the Prospectus, and such as are not material and do not materially interfere with the use made or proposed to be made of such property by the Company and its subsidiaries.

(m) Subsequent to the respective dates as of which information is given in the Registration Statement, the Statutory Prospectus and the Prospectus, (i) there has not been any event which could have a Material Adverse Effect; (ii) neither the Company nor any of its subsidiaries has sustained any loss or interference with its assets, businesses or properties (whether owned or leased) from fire, explosion, earthquake, flood or other calamity, whether or not covered by insurance, or from any labor dispute or any court or legislative or other governmental action, order or decree which would have a Material Adverse Effect; and (iii) since the date of the latest balance sheet included in the Registration Statement and the Prospectus, neither the Company nor its subsidiaries has (A) issued any securities (other than securities issued pursuant to employee benefit plans, qualified stock option plans or other employee compensation plans or pursuant to outstanding options, rights or warrants) or incurred any liability or obligation, direct or contingent, for borrowed money, except such liabilities or obligations incurred in the ordinary course of business, (B) entered into any transaction not in the ordinary course of business or (C) except for regular dividends on the Common Stock in amounts per share that are consistent with past practice, declared or paid any dividend or made any distribution on any shares of its stock or redeemed, purchased or otherwise acquired or agreed to redeem, purchase or otherwise acquire any shares of its capital stock.

(n) There is no document, contract or other agreement required to be described in the Registration Statement, the Statutory Prospectus or the Prospectus or to be filed as an exhibit to the Registration Statement which is not described or filed as required by the Securities Act or Rules. Each description of a contract, document or other agreement in the Registration Statement, the Statutory Prospectus or the Prospectus accurately reflects, in all material respects, the terms of the underlying contract, document or other agreement. Each contract, document or other agreement described in the Registration Statement, the Statutory Prospectus or the Prospectus or listed in the Exhibits to the Registration Statement or incorporated by reference therein is in full force and effect and is valid and enforceable by and against the Company or its subsidiary, as the case may be, in accordance with its terms. Neither the Company nor any of its subsidiaries, if a subsidiary is a party, nor to the Company's knowledge, any other party, is in default in the observance or performance of any term or obligation to be performed by it under any such agreement, and no event has occurred which with notice or lapse of time or both would constitute such a default, in any such case which default or event, individually or in the aggregate, would have a Material Adverse Effect. No default exists, and no event has occurred which with notice or lapse of time or both would constitute a default, in the due performance and observance of any term, covenant or condition, by the Company or its subsidiary, if a subsidiary is a party thereto, of any other agreement or instrument to which the Company or any of its subsidiaries is a party or by which Company or its properties or business or a subsidiary or its properties or business may be bound or affected which default or event, individually or in the aggregate, would have a Material Adverse Effect.

(o) The statistical and market related data included in the Registration Statement, the Statutory Prospectus or the Prospectus are based on or derived from sources that the Company believes to be reliable and accurate.

(p) Neither the Company nor any subsidiary (i) is in violation of its certificate of incorporation, bylaws or other organizational documents, (ii) is in default under, and no event has occurred which, with notice or lapse of time, or both, would constitute a default under, or result in the creation or imposition of any lien, charge, mortgage, pledge, security interest, claim, limitation on voting rights, equity, trust or other encumbrance, preferential arrangement, defect or restriction of any kind whatsoever, upon, any property or assets of the Company or any subsidiary pursuant to, any bond, debenture, note, indenture, mortgage, deed of trust, loan agreement or other agreement or instrument to which it is a party or by which it is bound or to which any of its properties or assets is subject or (iii) is in violation of any statute, law, rule, regulation, ordinance, directive, judgment, decree or order of any judicial, regulatory or other legal or governmental agency or body, foreign or domestic, except (in the case of clauses (ii) and (iii) above) for violations or defaults that could not (individually or in the aggregate) reasonably be expected to have a Material Adverse Effect.

(q) This Agreement has been duly authorized, executed and delivered by the Company.

(r) Neither the execution, delivery and performance of this Agreement, the Warrant Agreement and the Warrants by the Company nor the consummation of any of the transactions contemplated hereby (including, without limitation, the issuance and sale by the Company of the Securities) will give rise to a right to terminate or accelerate the due date of any payment due under, or conflict with or result in the breach of any term or provision of, or constitute a default (or an event which with notice or lapse of time or both would constitute a default) under, or require any consent or waiver under, or result in the execution or imposition of any lien, charge or encumbrance upon any properties or assets of the Company or its subsidiaries pursuant to the terms of, any indenture, mortgage, deed of trust or other agreement or instrument to which the Company or any of its subsidiaries is a party or by which either the Company or its subsidiaries or any of their properties or businesses is bound (except as described below), or any franchise, license, permit, judgment, decree, order, statute, rule or regulation applicable to the Company or any of its subsidiaries or violate any provision of the charter or by-laws of the Company or any of its subsidiaries, except for such consents or waivers which have already been obtained and are in full force and effect. Pursuant to the terms of the Security Agreement, dated as of December 22, 2016, among the Company and the other parties thereto (the "**Secured Parties**"), the security interests previously granted to the Secured Parties thereunder will extend to the net proceeds received by the Company from the sale of the Shares and Warrants pursuant to this Agreement.

(s) The Company has authorized and outstanding capital stock as set forth under the caption “Capitalization” in the Statutory Prospectus and the Prospectus. The Securities have been duly authorized for issuance by the Company. All of the issued and outstanding shares of Common Stock have been duly and validly issued and are fully paid and nonassessable. There are no statutory preemptive or other similar rights to subscribe for or to purchase or acquire any shares of Common Stock of the Company or any of its subsidiaries or any such rights pursuant to its Certificate of Incorporation or by-laws or any agreement or instrument to or by which the Company or any of its subsidiaries is a party or bound. The Company has reserved and kept available for the exercise of the Warrants such number of authorized but unissued shares of Common Stock as are sufficient to permit the exercise in full of the Warrants in accordance with their terms. The Shares, when issued and sold pursuant to this Agreement, and the Warrant Shares, when issued and sold pursuant to the Warrants, will be duly and validly issued, fully paid and nonassessable and none of them will be issued in violation of any preemptive or other similar right. Except as disclosed in the Registration Statement, the Statutory Prospectus and the Prospectus, there is no outstanding option, warrant or other right calling for the issuance of, and there is no commitment, plan or arrangement to issue, any share of stock of the Company or any of its subsidiaries or any security convertible into, or exercisable or exchangeable for, such stock. The exercise price of each option to acquire Common Stock (each, a “Company Stock Option”) is no less than the fair market value of a share of Common Stock as determined on the date of grant of such Company Stock Option. All grants of Company Stock Options were validly issued and properly approved by the Board of Directors of the Company in material compliance with all applicable laws and the terms of the plans under which such Company Stock Options were issued and were recorded on the Company Financial Statements, including the documents incorporated by reference in the Registration Statement, the Statutory Prospectus and the Prospectus, in accordance with GAAP, and no such grants involved any “back dating,” “forward dating,” “spring loading” or similar practices with respect to the effective date of grant. The Common Stock, the Shares and the Warrant Shares and the Warrants conform in all material respects to all statements in relation thereto contained in the Registration Statement and the Statutory Prospectus and the Prospectus. All outstanding shares of capital stock of each of the Company’s subsidiaries have been duly authorized and validly issued, and are fully paid and nonassessable and are owned directly by the Company or by another wholly-owned subsidiary of the Company free and clear of any security interests, liens, encumbrances, equities or claims, other than those described in the Registration Statement, the Statutory Prospectus and the Prospectus.

(t) No holder of any security of the Company has any right, which has not been waived, to have any security owned by such holder included in the Registration Statement or to demand registration of any security owned by such holder for a period of 90 days after the date of this Agreement. Each director and executive officer of the Company listed on Schedule II hereto has delivered to the Representative his or her enforceable written lock-up agreement in the form attached to this Agreement as Exhibit A hereto (“Lock-up Agreement”).

(u) There are no legal or governmental proceedings pending to which the Company or any of its subsidiaries is a party or of which any property of the Company or any of its subsidiaries is the subject which, if determined adversely to the Company or any of its subsidiaries could individually or in the aggregate have a Material Adverse Effect; and, to the knowledge of the Company, no such proceedings are threatened or contemplated by governmental authorities or threatened by others.

(v) All necessary corporate action has been duly and validly taken by the Company and to authorize the execution, delivery and performance of this Agreement, the Warrant Agreement, the Warrants and the issuance and sale of the Shares, the Warrants and the Warrant Shares by the Company. The Warrant Agreement and the Warrants on the Closing Date will be, duly and validly authorized, executed and delivered by the Company and will constitute legal, valid and binding obligations of the Company enforceable against the Company in accordance with their respective 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, and (ii) as limited by laws relating to the availability of specific performance, injunctive relief or other equitable remedies. Upon the execution and delivery thereof by the Company, the Warrants will have the respective rights specified in the Warrant Agreement.

(w) The Company nor any of its subsidiaries is involved in any labor dispute nor, to the knowledge of the Company, is any such dispute threatened, in each case, which dispute would have a Material Adverse Effect. The Company is not aware of any existing or imminent labor disturbance by the employees of any of its principal suppliers or contractors which would have a Material Adverse Effect. The Company is not aware of any threatened or pending litigation between the Company or its subsidiaries and any of its executive officers which, if adversely determined, could have a Material Adverse Effect, and the Company has no reason to believe that such executive officers will not remain in the employment of the Company.

(x) No transaction has occurred between or among the Company and any of its officers or directors, stockholders or any affiliate or affiliates of any such officer or director or stockholder that is required to be described in and is not described in the Registration Statement, the Statutory Prospectus and the Prospectus.

(y) The Company has not taken, nor will it take, directly or indirectly, any action designed to or which might reasonably be expected to cause or result in, or which has constituted or which might reasonably be expected to constitute, the stabilization or manipulation of the price of the Common Stock or any security of the Company to facilitate the sale or resale of any of the Securities.

(z) The Company and each of its subsidiaries has filed all federal, state, local and foreign tax returns which are required to be filed through the date hereof, which returns are true and correct in all material respects or has received timely extensions thereof, and has paid all taxes shown on such returns and all assessments received by it to the extent that the same are material and have become due. There are no tax audits or investigations pending, which if adversely determined would have a Material Adverse Effect; nor are there any material proposed additional tax assessments against the Company or any of its subsidiaries.

(aa) The Common Stock is registered pursuant to Section 12(b) of the Exchange Act and listed on The Nasdaq Capital Market. The Company has taken no action designed to, or likely to have the effect of, terminating the registration of the Common Stock under the Exchange Act or the quotation of the Common Stock on The Nasdaq Capital Market, nor has the Company received any notification that the Commission or The Nasdaq Capital Market is contemplating terminating such registration or quotation.

(bb) The books, records and accounts of the Company and its subsidiaries accurately and fairly reflect, in all material respects, the transactions in, and dispositions of, the assets of, and the results of operations of, the Company and its subsidiaries. The Company and each of its subsidiaries maintains a system of internal accounting controls sufficient to provide reasonable assurances 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 accordance 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.

(cc) The Company has established and maintains disclosure controls and procedures (as such term is defined in Rule 13a-15(e) under the Exchange Act), which: (i) are designed to ensure that material information relating to the Company is made known to the Company's principal executive officer and its principal financial officer by others within the Company, particularly during the periods in which the periodic reports required under the Exchange Act are required to be prepared; (ii) provide for the periodic evaluation of the effectiveness of such disclosure controls and procedures at the end of the periods in which the periodic reports are required to be prepared; and (iii) are effective in all material respects to perform the functions for which they were established.

(dd) Based on the evaluation of its disclosure controls and procedures, the Company is not aware of (i) any material weakness or significant deficiency in the design or operation of internal controls which could adversely affect the Company's ability to record, process, summarize and report financial data or any material weaknesses in internal controls; or (ii) any fraud, whether or not material, that involves management or other employees who have a role in the Company's internal controls.

(ee) Except as described in the Statutory Prospectus and the Prospectus and as preapproved in accordance with the requirements set forth in Section 10A of the Exchange Act, the Auditor has not been engaged by the Company to perform any "prohibited activities" (as defined in Section 10A of the Exchange Act).

(ff) Except as described in the Statutory Prospectus and the Prospectus, there are no material off-balance sheet arrangements (as defined in Item 303 of Regulation S-K) that have or are reasonably likely to have a material current or future effect on the Company's financial condition, revenues or expenses, changes in financial condition, results of operations, liquidity, capital expenditures or capital resources.

(gg) The Company's Board of Directors has validly appointed an audit committee whose composition satisfies the requirements of Rule 5605 of the Nasdaq Stock Market and the Board of Directors and/or the audit committee has adopted a charter that satisfies the requirements of Rule 5605 of The Nasdaq Stock Market. The audit committee has reviewed the adequacy of its charter within the past twelve (12) months.

(hh) There is and has been no failure on the part of the Company or any of its directors or officers, in their capacities as such, to comply with any provision of the Sarbanes-Oxley Act of 2002, as applicable, including, without limitation, Section 402 related to loans and Sections 302 and 906 related to certifications.

(ii) The Company and its subsidiaries are insured by insurers of recognized financial responsibility against such losses and risks and in such amounts as are customary in the businesses in which they are engaged or propose to engage after giving effect to the transactions described in the Statutory Prospectus and the Prospectus; all policies of insurance and fidelity or surety bonds insuring the Company or any of its subsidiaries or the Company's or its subsidiaries' respective businesses, assets, employees, officers and directors are in full force and effect; the Company and each of its subsidiaries are in compliance with the terms of such policies and instruments in all material respects; and neither the Company nor any subsidiary of the Company has any reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business at a cost that is not materially greater than the current cost. Neither the Company nor any of its subsidiaries has been denied any insurance coverage which it has sought or for which it has applied.

(jj) Each approval, consent, order, authorization, designation, declaration or filing of, by or with any regulatory, administrative or other governmental body necessary in connection with the execution and delivery by the Company of this Agreement and the consummation of the transactions herein contemplated required to be obtained or performed by the Company (except (i) such additional steps as may be required by the Financial Industry Regulatory Authority ("FINRA"); (ii) as may be necessary to qualify the Shares and Warrants for public offering by the Underwriters under the state securities or Blue Sky laws; (iii) the filing of a Notification Form: Listing of Additional Shares with The Nasdaq Capital Market; or (iv) any filings required under the Exchange Act, which have been or will be made when and how required) has been obtained or made and is in full force and effect.

(kk) None of the Company, nor any of its officers, directors or, to the best knowledge of the Company, any beneficial owner of five percent or greater of the Common Stock, is affiliated or associated with any broker-dealer that is a member of FINRA, except as otherwise disclosed to the Representative in writing.

(ll) (i) Each of the Company and each of its subsidiaries is in compliance in all material respects with all rules, laws and regulation relating to the use, treatment, storage and disposal of toxic substances and protection of health or the environment ("Environmental Laws") which are applicable to its business; (ii) neither the Company nor its subsidiaries has received any notice from any governmental authority or third party of an asserted claim under Environmental Laws; (iii) each of the Company and each of its subsidiaries has received all permits, licenses or other approvals required of it under applicable Environmental Laws to conduct its business, except where the lack of such permits, licenses or other approvals, individually or in the aggregate, would not have a Material Adverse Effect, and is in compliance, in all material respects, with all terms and conditions of any such permit, license or approval; (iv) to the Company's knowledge, no facts currently exist that will require the Company or any of its subsidiaries to make future material capital expenditures to comply with Environmental Laws; and (v) no property which is or has been owned, leased or occupied by the Company or its subsidiaries has been designated as a Superfund site pursuant to the Comprehensive Environmental Response, Compensation of Liability Act of 1980, as amended (42 U.S.C. Section 9601, et. seq.) ("CERCLA 1980") or otherwise designated as a contaminated site under applicable state or local law. Neither the Company nor any of its subsidiaries has been named as a "potentially responsible party" under the CERCLA 1980.

(mm) In the ordinary course of its business, the Company periodically reviews the effect of Environmental Laws on the business, operations and properties of the Company and its subsidiaries, in the course of which the Company identifies and evaluates associated costs and liabilities (including, without limitation, any capital or operating expenditures required for clean-up, closure of properties or compliance with Environmental Laws, or any permit, license or approval, any related constraints on operating activities and any potential liabilities to third parties). On the basis of such review, the Company has reasonably concluded that such associated costs and liabilities would not, singly or in the aggregate, have a Material Adverse Effect.

(nn) The Company is not and, after giving effect to the offering and sale of the Securities and the application of proceeds thereof as described in the Statutory Prospectus and the Prospectus, will not be an “investment company” within the meaning of the Investment Company Act of 1940, as amended (the “Investment Company Act”).

(oo) The Company, any director, officer or employee of the Company or its subsidiaries, and, to the knowledge of the Company, any agent or other person acting on behalf of the Company or its subsidiaries, has not, directly or indirectly, while acting on behalf of the Company or its subsidiaries (i) used any corporate funds for unlawful contributions, gifts, entertainment or other unlawful expenses relating to political activity; (ii) made any unlawful payment to foreign or domestic government officials or employees or to foreign or domestic political parties or campaigns from corporate funds; (iii) violated any applicable provision of the U.S. Foreign Corrupt Practices Act of 1977, as amended; or (iv) made any other unlawful payment.

(pp) The operations of the Company and its subsidiaries are and have been conducted at all times in compliance with applicable financial recordkeeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, the money laundering statutes of all applicable jurisdictions, the rules and regulations thereunder and any related or similar rules, regulations or guidelines, issued, administered or enforced by any governmental agency (collectively, the “Money Laundering Laws”) and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any of its subsidiaries with respect to the Money Laundering Laws is pending, or to the best knowledge of the Company, threatened.

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

(rr) Except as described in the Registration Statement, the Statutory Prospectus and the Prospectus, the Company has not sold or issued any shares of Common Stock during the six-month period preceding the date of the Prospectus, including any sales pursuant to Rule 144A under, or Regulations D or S of, the Securities Act, other than shares issued pursuant to employee benefit plans, qualified stock options plans or other employee compensation plans or pursuant to outstanding options, rights, warrants or debt securities.

(ss) The Company has fulfilled its obligations, if any, under the minimum funding standards of Section 302 of the U.S. Employee Retirement Income Security Act of 1974 (“ERISA”) and the regulations and published interpretations thereunder with respect to each “plan” as defined in Section 3(3) of ERISA and such regulations and published interpretations in which its employees are eligible to participate and each such plan is in compliance, in all material respects, with the presently applicable provisions of ERISA and such regulations and published interpretations. No “Reportable Event” (as defined in 12 ERISA) has occurred with respect to any “Pension Plan” (as defined in ERISA) for which the Company could have any liability.

(tt) None of the Company, its directors or its officers has distributed nor will distribute prior to the later of (i) the Closing Date, and (ii) completion of the distribution of the Shares and Warrants, any offering material in connection with the offering and sale of the Shares and Warrants other than any Preliminary Prospectus, the Prospectus, the Registration Statement and other materials, if any, permitted by the Securities Act and consistent with Section 4(d) below.

(uu) Since the date of the preliminary prospectus included in the Registration Statement filed with the Commission on February 20, 2019 (or, if earlier, the first date on which the Company engaged directly or through any Person authorized to act on its behalf in any Testing-the-Waters Communication (as defined herein)) through the date hereof, the Company has been and is an “emerging growth company,” as defined in Section 2(a) of the Securities Act (an “Emerging Growth Company”). “Testing-the-Waters Communication” means any oral or written communication with potential investors undertaken in reliance on Section 5(d) of the Securities Act.

(vv) The Company (a) has not alone engaged in any Testing-the-Waters Communication other than Testing-the-Waters Communications with the consent of the Representative with entities that are qualified institutional buyers within the meaning of Rule 144A under the Securities Act or institutions that are accredited investors within the meaning of Rule 501 under the Securities Act and (b) has not authorized anyone other than the Representative to engage in Testing-the-Waters Communications. The Company reconfirms that the Representative has been authorized to act on its behalf in undertaking Testing-the-Waters Communications. The Company has not distributed any Written Testing-the-Waters Communications (as defined herein). “Written Testing-the-Waters Communication” means any Testing-the-Waters Communication that is a written communication within the meaning of Rule 405 under the Securities Act.

(ww) The Company maintains written policies and procedures reasonably designed for the Company to remain in material compliance with the laws, rules and regulations applicable to it and its business activities. The Company maintains supervisory policies and procedures reasonably designed to permit supervisors to monitor the Company’s material compliance with applicable laws, rules and regulations.

3. Conditions of the Underwriters' Obligations. The obligations of the Underwriters under this Agreement are several and not joint. The respective obligations of the Underwriters to purchase the Shares and Warrants are subject to each of the following terms and conditions:

(a) Notification that the Registration Statement has become effective shall have been received by the Representative and the Prospectus shall have been timely filed with the Commission in accordance with Section 4(a) of this Agreement and any material required to be filed by the Company pursuant to Rule 433(d) of the Rules shall have been timely filed with the Commission in accordance with such rule.

(b) No order preventing or suspending the use of any Preliminary Prospectus, the Prospectus or any "free writing prospectus" (as defined in Rule 405 of the Rules), shall have been or shall be in effect and no order suspending the effectiveness of the Registration Statement shall be in effect and no proceedings for such purpose shall be pending before or threatened by the Commission, and any requests for additional information on the part of the Commission (to be included in the Registration Statement or the Prospectus or otherwise) shall have been complied with to the satisfaction of the Commission and the Representative. If the Company has elected to rely upon Rule 430A, Rule 430A information previously omitted from the effective Registration Statement pursuant to Rule 430A shall have been transmitted to the Commission for filing pursuant to Rule 424(b) within the prescribed time period and the Company shall have provided evidence satisfactory to the Underwriters of such timely filing, or a post-effective amendment providing such information shall have been promptly filed and declared effective in accordance with the requirements of Rule 430A.

(c) The representations and warranties of the Company contained in this Agreement and in any certificates delivered pursuant to Section 3(d) shall be true and correct when made and on and as of the Closing Date as if made on such date. The Company shall have performed all covenants and agreements and satisfied all the conditions contained in this Agreement required to be performed or satisfied by it at or before the Closing Date.

(d) The Representative shall have received on the Closing Date a certificate, addressed to the Representative and dated the Closing Date, of the chief executive and financial officer and the executive chairman of the board of directors of the Company to the effect that: (i) the representations, warranties and agreements of the Company in this Agreement were true and correct when made and are true and correct as of the Closing Date; (ii) the Company has performed all covenants and agreements and satisfied all conditions contained herein; (iii) they have carefully examined the Registration Statement, the Prospectus, the General Disclosure Package, and any individual Issuer Free Writing Prospectus and, in their opinion (A) as of the Effective Date the Registration Statement and Prospectus did not include, and as of the Applicable Time, neither (i) the General Disclosure Package, nor (ii) any individual Issuer Free Writing Prospectus, when considered together with the General Disclosure Package, included, any untrue statement of a material fact and did not 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, and (B) since the Effective Date no event has occurred which should have been set forth in a supplement or otherwise required an amendment to the Registration Statement, the Statutory Prospectus or the Prospectus; (iv) no stop order suspending the effectiveness of the Registration Statement has been issued and, to their knowledge, no proceedings for that purpose have been instituted or are pending under the Securities Act and (v) there has not occurred any material adverse change in the assets, properties, condition, financial or otherwise, or in the results of operations, business affairs or business prospects of the Company and its subsidiaries considered as a whole.

(e) The Representative shall have received: (i) simultaneously with the execution of this Agreement a signed letter from the Auditor addressed to the Representative and dated the date of this Agreement, in form and substance reasonably satisfactory to the Representative, containing statements and information of the type ordinarily included in accountants' "comfort letters" to underwriters with respect to the financial statements and certain financial information contained in the Registration Statement and the General Disclosure Package, and (ii) on the Closing Date, a signed letter from the Auditor addressed to the Representative and dated the Closing Date, in form and substance reasonably satisfactory to the Representative containing statements and information of the type ordinarily included in accountants' "comfort letters" to underwriters with respect to the financial statements and certain financial information contained in the Registration Statement and the Prospectus.

(f) The Representative shall have received on the Closing Date from Cooley LLP, corporate and intellectual property counsel for the Company, an opinion and negative assurance statement, addressed to the Representative and dated the Closing Date, in form and substance reasonably satisfactory to the Representative.

(g) The Representative shall have received on the Closing Date from Lowenstein Sandler LLP, counsel for the Representative, an opinion and negative assurance statement, addressed to the Representative and dated the Closing Date, in form and substance reasonably satisfactory to the Representative.

(h) All proceedings taken in connection with the sale of the Shares and Warrants as herein contemplated shall be reasonably satisfactory in form and substance to the Representative, and counsel to the Underwriters.

(i) The Representative shall have received copies of the Lock-up Agreements executed by each director and executive officer of the Company listed on Schedule II hereto.

(j) The Company shall have submitted a Notification Form: Listing of Additional Shares with The Nasdaq Capital Market with respect to the Shares and the Warrant Shares and Nasdaq shall have raised no objection with respect to the listing of the Shares and the Warrant Shares which has not been resolved to the reasonable satisfaction of the Representative on or before the Closing Date.

(k) The Representative shall be reasonably satisfied that since the respective dates as of which information is given in the Registration Statement, the Statutory Prospectus, the General Disclosure Package and the Prospectus, (i) there shall not have been any material change in the capital stock of the Company or any material change in the indebtedness (other than in the ordinary course of business) of the Company, (ii) except as set forth or contemplated by the Registration Statement, the Statutory Prospectus, the General Disclosure Package or the Prospectus, no material oral or written agreement or other transaction shall have been entered into by the Company that is not in the ordinary course of business or that could reasonably be expected to result in a material reduction in the future earnings of the Company, (iii) no loss or damage (whether or not insured) to the property of the Company shall have been sustained that had or could reasonably be expected to have a Material Adverse Effect, (iv) no legal or governmental action, suit or proceeding affecting the Company or any of its properties that is material to the Company or that affects or could reasonably be expected to affect the transactions contemplated by this Agreement shall have been instituted or threatened and (v) there shall not have been any material change in the assets, properties, condition (financial or otherwise), or in the results of operations, business affairs or business prospects of the Company or its subsidiaries considered as a whole that makes it impractical or inadvisable in the Representative's judgment to proceed with the purchase or offering of the Shares and Warrants as contemplated hereby.

(l) On or prior to the Closing Date, FINRA shall have confirmed that it has not raised any objection with respect to the fairness and reasonableness of the underwriting terms and agreements in connection with the offering of the Shares and Warrants.

(m) The Company shall have delivered to the Representative a fully executed counterpart of the Warrant Agreement and PDFs of the fully executed Global Certificates (as defined in the Warrant Agreement).

(n) The Company shall have furnished or caused to be furnished to the Representative such further certificates or documents as the Representative shall have reasonably requested.

4. Covenants and other Agreements of the Company and the Underwriters.

(a) The Company covenants and agrees as follows:

(i) The Company will use its reasonable best efforts to cause the Registration Statement, if not effective at the time of execution of this Agreement, and any amendments thereto, to become effective as promptly as possible. The Company shall prepare the Prospectus in a form approved by the Representative and file such Prospectus pursuant to Rule 424(b) under the Securities Act not later than the Commission's close of business on the second business day following the execution and delivery of this Agreement, or, if applicable, such earlier time as may be required by the Rules. The Company will file with the Commission all Issuer Free Writing Prospectuses in the time and manner required under Rules 433(d) or 163(b)(2), as the case may be.

(ii) The Company shall promptly advise the Representative in writing (A) when any post-effective amendment to the Registration Statement shall have become effective or any supplement to the Prospectus shall have been filed, (B) of any request by the Commission for any amendment of the Registration Statement or the Prospectus or for any additional information, (C) of the issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement or of any order preventing or suspending the use of any preliminary prospectus or any "free writing prospectus", as defined in Rule 405 of the Rules, or the institution or threatening of any proceeding for that purpose and (D) of the receipt by the Company of any notification with respect to the suspension of the qualification of the Shares and Warrants for sale in any jurisdiction or the initiation or threatening of any proceeding for such purpose. The Company shall not file any amendment of the Registration Statement or supplement to the Prospectus or any document incorporated by reference in the Registration Statement or any Issuer Free Writing Prospectus unless the Company has furnished the Representative a copy for its review prior to filing and shall not file any such proposed amendment or supplement to which the Representative reasonably object. The Company shall use its best efforts to prevent the issuance of any such stop order and, if issued, to obtain as soon as possible the withdrawal thereof.

(iii) If, at any time when a prospectus relating to the Shares or Warrants (or, in lieu thereof, the notice referred to in Rule 173(a) of the Rules) is required to be delivered under the Securities Act, any event occurs as a result of which the Prospectus as then amended or supplemented would include any untrue statement of a material fact or omit to state any material fact necessary to make the statements therein in the light of the circumstances under which they were made not misleading, or if it shall be necessary to amend or supplement the Prospectus to comply with the Securities Act or the Rules or the Exchange Act and the rules and regulations of the Commission thereunder, the Company promptly shall prepare and file with the Commission, subject to the second sentence of paragraph (ii) of this Section 4(a), an amendment or supplement which shall correct such statement or omission or an amendment which shall effect such compliance.

(iv) If at any time following issuance of an Issuer Free Writing Prospectus there occurs an event or development as a result of which such Issuer Free Writing Prospectus would conflict with the information contained in the Registration Statement or would include an untrue statement of a material fact or would 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 prevailing at the subsequent time, not misleading, the Company will promptly notify the Representative and will promptly amend or supplement, at its own expense, such Issuer Free Writing Prospectus to eliminate or correct such conflict or so that the statements in such Issuer Free Writing Prospectus as so amended or supplemented will not include 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 prevailing at such time, not misleading, as the case may be.

(v) The Company shall make generally available to its security holders and to the Representative as soon as practicable, but not later than 45 days after the end of the 12-month period beginning at the end of the fiscal quarter of the Company during which the Effective Date occurs (or 90 days if such 12-month period coincides with the Company's fiscal year), an earning statement (which need not be audited) of the Company, covering such 12-month period, which shall satisfy the provisions of Section 11(a) of the Securities Act or Rule 158 of the Rules.

(vi) The Company shall furnish to the Representative and counsel for the Underwriters, without charge, signed copies of the Registration Statement (including all exhibits thereto and amendments thereof) and to each other Underwriter a copy of the Registration Statement (without exhibits thereto) and all amendments thereof and, so long as delivery of a prospectus by an Underwriter or dealer may be required by the Securities Act or the Rules, as many copies of any Preliminary Prospectus, any Issuer Free Writing Prospectus and the Prospectus and any amendments thereof and supplements thereto as the Representative may reasonably request. If applicable, the copies of the Registration Statement, any Preliminary Prospectus, any Issuer Free Writing Prospectus and Prospectus and each amendment and supplement thereto furnished to the Underwriters will be identical to the electronically transmitted copies thereof filed with the Commission pursuant to EDGAR, except to the extent permitted by Regulation S-T.

(vii) The Company shall cooperate with the Representative and their counsel in endeavoring to qualify the Securities for offer and sale in connection with the offering under the laws of such jurisdictions as the Representative may designate and shall maintain such qualifications in effect so long as required for the distribution of the Securities; provided, however, that the Company shall not be required in connection therewith, as a condition thereof, to qualify as a foreign corporation or to execute a general consent to service of process in any jurisdiction or subject itself to taxation as doing business in any jurisdiction.

(viii) The Company, during the period when the Prospectus (or in lieu thereof, the notice referred to in Rule 173(a) of the Rules) is required to be delivered under the Securities Act and the Rules or the Exchange Act, will file all reports and other documents required to be filed with the Commission pursuant to Section 13, 14 or 15 of the Exchange Act within the time periods required by the Exchange Act and the regulations promulgated thereunder.

(ix) Without the prior written consent of the Representative, for a period of 90 days after the date of this Agreement, the Company shall not issue, sell or register with the Commission (other than on Form S-8 or on any successor form), or otherwise dispose of, directly or indirectly, any equity securities of the Company (or any securities convertible into, exercisable for or exchangeable for equity securities of the Company), except for the issuance of the Securities pursuant to the Registration Statement and the issuance of shares pursuant to the Company's existing stock option plan or bonus plan, or existing warrants or convertible securities as described in the Registration Statement and the Prospectus. The Company represents and warrants that it shall enforce the Lock-Up Agreements and impose stop-transfer restrictions on any sale or other transfer or disposition of securities subject to a Lock-Up Agreement until the end of the applicable period.

(x) On or before completion of this offering, the Company shall make all filings required under applicable securities laws and by The Nasdaq Capital Market.

(xi) Prior to the Closing Date, the Company will issue no press release or other communications directly or indirectly and hold no press conference with respect to the Company, the condition, financial or otherwise, or the earnings, business affairs or business prospects of any of them, or the offering of the Shares without the prior written consent of the Representative unless in the judgment of the Company and its counsel, and after notification to the Representative, such press release or communication is required by law.

(xii) The Company will apply the net proceeds from the offering of the Shares and Warrants in the manner set forth under “Use of Proceeds” in the Prospectus.

(xiii) The Company will promptly notify the Representative if the Company ceases to be an Emerging Growth Company at any time prior to the later of (a) completion of the distribution of the Shares and Warrants within the meaning of the Securities Act and (b) completion of the 90-day restricted period referred to in Section 4(a)(ix) hereof.

(xiv) If at any time following the distribution of any Written Testing-the-Waters Communication there occurred or occurs an event or development as a result of which such Written Testing-the-Waters Communication included or would include an untrue statement of a material fact or omitted or would omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances existing at that subsequent time, not misleading, the Company will promptly notify the Representative and will promptly amend or supplement, at its own expense, such Written Testing-the-Waters Communication to eliminate or correct such untrue statement or omission.

(b) The Company agrees to pay, or reimburse if paid by the Representative, whether or not the transactions contemplated hereby are consummated or this Agreement is terminated, all costs and expenses incident to the public offering of the Shares and Warrants and the performance of the obligations of the Company under this Agreement including those relating to: (i) the preparation, printing, reproduction, filing and distribution of the Registration Statement including all exhibits thereto, each Preliminary Prospectus, the Prospectus, any Issuer Free Writing Prospectus, all amendments and supplements thereto and any document incorporated by reference therein, and the printing, filing and distribution of this Agreement; (ii) the preparation and delivery of the Shares and Warrants to the Underwriters; (iii) the registration or qualification of the Securities for offer and sale under the securities or Blue Sky laws of the various jurisdictions referred to in Section 4(a)(vii), including the reasonable fees and disbursements of counsel for the Underwriters incurred in connection with such registration and qualification and the preparation, printing, distribution and shipment of preliminary and supplementary Blue Sky memoranda; (iv) the furnishing (including costs of shipping and mailing) to the Representative and to the Underwriters of copies of each Preliminary Prospectus, the Prospectus and all amendments or supplements to the Prospectus, any Issuer Free Writing Prospectus, and of the several documents required by this Section 4 to be so furnished, as may be reasonably requested for use in connection with the offering and sale of the Shares and Warrants by the Underwriters or by dealers to whom Shares and Warrants may be sold; (v) the filing fees of FINRA in connection with its review of the terms of the public offering and reasonable fees and disbursements of counsel for the Underwriters in connection with such review; (vi) inclusion of the Shares and the Warrant Shares for listing on the Nasdaq Capital Market; (vii) fees and expenses of the Warrant Agent and the transfer agent for the Common Stock; and (viii) all transfer taxes, if any, with respect to the sale and delivery of the Shares and Warrants by the Company to the Underwriters. The Company will reimburse the Representative for its reasonable out-of-pocket costs and expenses incident to this offering and the performance of the obligations of the Representative under this Agreement, including its legal fees and disbursements, in connection with the purchase and sale of the Shares and Warrants contemplated hereby in an amount not to exceed \$150,000 (including amounts payable pursuant to clauses (iii) and (v) above). Subject to the provisions of Section 7, the Underwriters agree to pay, whether or not the transactions contemplated hereby are consummated or this Agreement is terminated, all costs and expenses incident to the performance of the obligations of the Underwriters under this Agreement not payable by the Company pursuant to the preceding sentence, including, without limitation, the fees and disbursements of counsel for the Underwriters.

(c) The Company acknowledges and agrees that each of the Underwriters has acted and is acting solely in the capacity of a principal in an arm's length transaction between the Company, on the one hand, and the Underwriters, on the other hand, with respect to the offering of Shares and Warrants contemplated hereby (including in connection with determining the terms of the offering) and not as a financial advisor, agent or fiduciary to the Company or any other person. Additionally, the Company acknowledges and agrees that the Underwriters have not and will not advise the Company or any other person as to any legal, tax, investment, accounting or regulatory matters in any jurisdiction. The Company has consulted with its own advisors concerning such matters and shall be responsible for making its own independent investigation and appraisal of the transactions contemplated hereby, and the Underwriters shall have no responsibility or liability to the Company or any other person with respect thereto, whether arising prior to or after the date hereof. Any review by the Underwriters of the Company, the transactions contemplated hereby or other matters relating to such transactions have been and will be performed solely for the benefit of the Underwriters and shall not be on behalf of the Company. The Company agrees that it will not claim that the Underwriters, or any of them, has rendered advisory services of any nature or respect, or owes a fiduciary duty to the company or any other person in connection with any such transaction or the process leading thereto.

(d) The Company represents and agrees that, unless it obtains the prior consent of the Representative, and each Underwriter represents and agrees that, unless it obtains the prior consent of the Company and the Representative, it has not made and will not make any offer relating to the Shares and Warrants that would constitute an "issuer free writing prospectus," as defined in Rule 433, or that would otherwise constitute a "free writing prospectus," as defined in Rule 405, required to be filed with the Commission. The Company has complied and will comply with the requirements of Rule 433 under the Securities Act applicable to any Issuer Free Writing Prospectus, including timely filing with the Commission where required, legending and record keeping. The Company represents that it has satisfied and agrees that it will satisfy the conditions set forth in Rule 433 of the Rules to avoid a requirement to file with the Commission any Road Show.

5. Indemnification.

(a) The Company agrees to indemnify and hold harmless each Underwriter, its officers and employees and each person, if any, who controls any Underwriter within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act against any and all losses, claims, damages and liabilities, joint or several (including any reasonable investigation, legal and other expenses incurred in connection with, and any amount paid in settlement of, any action, suit or proceeding or any claim asserted), to which they, or any of them, may become subject under the Securities Act, the Exchange Act or other Federal or state law or regulation, at common law or otherwise, insofar as such losses, claims, damages or liabilities arise out of or are based upon any untrue statement or alleged untrue statement of a material fact contained in any preliminary prospectus, the Registration Statement, the Statutory Prospectus, the Prospectus, any Issuer Free Writing Prospectus or any “issuer information” filed or required to be filed pursuant to Rule 433(d) of the Rules, any amendment thereof or supplement thereto, any Written Testing-the-Waters Communication, or in any Blue Sky application or other information or other documents executed by the Company filed in any state or other jurisdiction to qualify any or all of the Securities under the securities laws thereof (any such application, document or information being hereinafter referred to as a “Blue Sky Application”) or arise out of or are based upon any omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading; provided, however, that such indemnity shall not inure to the benefit of any Underwriter (or any person controlling such Underwriter) on account of any losses, claims, damages or liabilities arising from the sale of the Shares and Warrants to any person by such Underwriter if such untrue statement or omission or alleged untrue statement or omission was made in such preliminary prospectus, the Registration Statement, the Prospectus, the Statutory Prospectus, any Issuer Free Writing Prospectus or such amendment or supplement thereto, any Written Testing-the-Waters Communication, or in any Blue Sky Application in reliance upon and in conformity with the Underwriter Information. This indemnity agreement will be in addition to any liability which the Company may otherwise have.

(b) Each Underwriter, severally and not jointly, agrees to indemnify and hold harmless the Company and each person, if any, who controls the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act, each director of the Company, and each officer of the Company who signs the Registration Statement, against any losses, claims, damages or liabilities (including any reasonable investigation, legal and other expenses incurred in connection with, and any amount paid in settlement of, any action, suit or proceeding or any claim asserted) to which such party may become subject, under the Securities Act or otherwise, insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon an untrue statement or alleged untrue statement of a material fact contained in any preliminary prospectus, the Registration Statement, the Statutory Prospectus or the Prospectus, any Issuer Free Writing Prospectus or any amendment thereof or supplement thereto, or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, in each case to the extent, but only to the extent, that such untrue statement or alleged untrue statement or omission or alleged omission was made in any Preliminary Prospectus, the Registration Statement, the Statutory Prospectus or the Prospectus or any such amendment or supplement in reliance upon and in conformity with the Underwriter Information; provided, however, that the obligation of each Underwriter to indemnify the Company (including any controlling person, director or officer thereof) shall be limited to the amount of the underwriting discount applicable to the Shares and Warrants to be purchased by such Underwriter hereunder.

(c) Any party that proposes to assert the right to be indemnified under this Section will, promptly after receipt of notice of commencement of any action, suit or proceeding against such party in respect of which a claim is to be made against an indemnifying party or parties under this Section, notify each such indemnifying party of the commencement of such action, suit or proceeding, enclosing a copy of all papers served. No indemnification provided for in Section 5(a) or 5(b) shall be available to any party who shall fail to give notice as provided in this Section 5(c) if the party to whom notice was not given was unaware of the action, suit or proceeding to which such notice would have related and was prejudiced by the failure to give such notice but the omission so to notify such indemnifying party of any such action, suit or proceeding shall not relieve it from any liability that it may have to any indemnified party for contribution or otherwise than under this Section 5. In case any such action, suit or proceeding shall be brought against any indemnified party and it shall notify the indemnifying party of the commencement thereof, the indemnifying party shall be entitled to participate in, and, to the extent that it shall wish, jointly with any other indemnifying party similarly notified, to assume the defense thereof, with counsel reasonably satisfactory to such indemnified party, and after notice from the indemnifying party to such indemnified party of its election so to assume the defense thereof and the approval by the indemnified party of such counsel, the indemnifying party shall not be liable to such indemnified party for any legal or other expenses, except as provided below and except for the reasonable costs of investigation subsequently incurred by such indemnified party in connection with the defense thereof. The indemnified party shall have the right to employ its counsel in any such action, but the fees and expenses of such counsel shall be at the expense of such indemnified party unless (i) the employment of counsel by such indemnified party has been authorized in writing by the indemnifying parties, (ii) the indemnified party shall have been advised by counsel that there may be one or more legal defenses available to it which are different from or in addition to those available to the indemnifying party (in which case the indemnifying parties shall not have the right to direct the defense of such action on behalf of the indemnified party) or (iii) the indemnifying parties shall not have employed counsel to assume the defense of such action within a reasonable time after notice of the commencement thereof, in each of which cases the fees and expenses of counsel shall be at the expense of the indemnifying parties. An indemnifying party shall not be liable for any settlement of any action, suit, and proceeding or claim effected without its written consent, which consent shall not be unreasonably withheld or delayed.

(d) No indemnifying party shall, without the prior written consent of the indemnified party, effect any settlement, compromise or consent to the entry of judgment in any pending or threatened action, suit or proceeding in respect of which any indemnified party is a party or could be named and indemnity was or would be sought hereunder by such indemnified party, unless such settlement, compromise or consent (a) includes an unconditional release of such indemnified party from all liability for claims that are the subject matter of such action, suit or proceeding and (b) does not include a statement as to or an admission of fault, culpability or a failure to act by or on behalf of any indemnified party.

6. Contribution. In order to provide for just and equitable contribution in circumstances in which the indemnification provided for in Section 5(a) or 5(b) is due in accordance with its terms but for any reason is unavailable to or insufficient to hold harmless an indemnified party in respect to any losses, liabilities, claims, damages or expenses referred to therein, then each indemnifying party shall contribute to the aggregate losses, liabilities, claims, damages and expenses (including any investigation, legal and other expenses reasonably incurred in connection with, and any amount paid in settlement of, any action, suit or proceeding or any claims asserted, but after deducting any contribution received by any person entitled hereunder to contribution from any person who may be liable for contribution) incurred by such indemnified party, as incurred, in such proportion as is appropriate to reflect the relative benefits received by the Company on the one hand and the Underwriters on the other hand from the offering of the Shares and Warrants pursuant to this Agreement or, if such allocation is not permitted by applicable law, in such proportion as is appropriate to reflect not only the relative benefits referred to above but also the relative fault of the Company on the one hand and the Underwriters on the other hand in connection with the statements or omissions which resulted in such losses, liabilities, claims, damages or expenses, as well as any other relevant equitable considerations. The Company and the Underwriters agree that it would not be just and equitable if contribution pursuant to this Section 6 were determined by pro rata allocation (even if the Underwriters were treated as one entity for such purpose) or by any other method of allocation which does not take account of the equitable considerations referred to above. The aggregate amount of losses, liabilities, claims, damages and expenses incurred by an indemnified party and referred to above shall be deemed to include any legal or other expenses reasonably incurred by such indemnified party in investigating, preparing or defending against any litigation, or any investigation or proceeding by any governmental agency or body, commenced or threatened, or any claim whatsoever based upon any such untrue or alleged untrue statement or omission or alleged omission. Notwithstanding the provisions of this Section 6, no Underwriter (except as may be provided in the Agreement Among Underwriters) shall be required to contribute any amount in excess of the underwriting discounts and commissions applicable to the Shares and Warrants purchased by such Underwriter. No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. For purposes of this Section 6, each person, if any, who controls an Underwriter within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act shall have the same rights to contribution as such Underwriter, and each director of the Company, each officer of the Company who signed the Registration Statement, and each person, if any, who controls the Company within the meaning of the Section 15 of the Securities Act or Section 20 of the Exchange Act, shall have the same rights to contribution as the Company, as the case may be. Any party entitled to contribution will, promptly after receipt of notice of commencement of any action, suit or proceeding against such party in respect of which a claim for contribution may be made against another party or parties under this Section 6, notify such party or parties from whom contribution may be sought, but the omission so to notify such party or parties from whom contribution may be sought shall not relieve the party or parties from whom contribution may be sought from any other obligation it or they may have hereunder or otherwise than under this Section 6. No party shall be liable for contribution with respect to any action, suit, proceeding or claim settled without its written consent. The Underwriters' obligations to contribute pursuant to this Section 6 are several in proportion to their respective underwriting commitments and not joint.

7. Termination.

(a) This Agreement may be terminated with respect to the Shares and Warrants to be purchased on the Closing Date by the Representative by notifying the Company at any time at or before the Closing Date in the absolute discretion of the Representative if: (i) there has occurred any material adverse change in the securities markets or any event, act or occurrence that has materially disrupted, or in the opinion of the Representative, will in the future materially disrupt, the securities markets or there shall be such a material adverse change in general financial, political or economic conditions or the effect of international conditions on the financial markets in the United States is such as to make it, in the judgment of the Representative, inadvisable or impracticable to market the Shares and Warrants or enforce contracts for the sale of the Shares and Warrants; (ii) there has occurred any outbreak or material escalation of hostilities or acts of terrorism or other calamity or crisis the effect of which on the financial markets of the United States is such as to make it, in the judgment of the Representative, inadvisable or impracticable to market the Shares and Warrants or enforce contracts for the sale of the Shares and Warrants; (iii) trading in the Shares or any securities of the Company has been suspended or materially limited by the Commission or trading generally on the New York Stock Exchange, Inc., the NYSE American or The Nasdaq Stock Market has been suspended or materially limited, or minimum or maximum ranges for prices for securities shall have been fixed, or maximum ranges for prices for securities have been required, by any of said exchanges or by such system or by order of the Commission, FINRA, or any other governmental or regulatory authority; or (iv) a banking moratorium has been declared by any state or Federal authority; or (v) in the judgment of the Representative, there has been, since the time of execution of this Agreement or since the respective dates as of which information is given in the Prospectus, any material adverse change in the assets, properties, condition, financial or otherwise, or in the results of operations, business affairs or business prospects of the Company and its subsidiaries considered as a whole, whether or not arising in the ordinary course of business.

(b) If this Agreement is terminated pursuant to any of its provisions, the Company shall not be under any liability to any Underwriter, and no Underwriter shall be under any liability to the Company, except that (x) if this Agreement is terminated by the Representative or the Underwriters because of any failure, refusal or inability on the part of the Company to comply with the terms or to fulfill any of the conditions of this Agreement, the Company will reimburse the Underwriters for all out-of-pocket expenses (including the reasonable fees and disbursements of their counsel) incurred by them in connection with the proposed purchase and sale of the Shares and Warrants or in contemplation of performing their obligations hereunder and (y) no Underwriter who shall have failed or refused to purchase the Shares and Warrants agreed to be purchased by it under this Agreement, without some reason sufficient hereunder to justify cancellation or termination of its obligations under this Agreement, shall be relieved of liability to the Company, or to the other Underwriters for damages occasioned by its failure or refusal.

8. Substitution of Underwriters. If any Underwriter shall default in its obligation to purchase on the Closing Date the Shares and Warrants agreed to be purchased hereunder on such Closing Date, the Representative shall have the right, within 36 hours thereafter, to make arrangements for one or more of the non-defaulting Underwriters, or any other underwriters, to purchase such Shares and Warrants on the terms contained herein. If, however, the Representative shall not have completed such arrangements within such 36-hour period, then the Company shall be entitled to a further period of 36 hours within which to procure another party or other parties satisfactory to the Underwriters to purchase such Shares and Warrants on such terms. If, after giving effect to any arrangements for the purchase of the Shares and Warrants of a defaulting Underwriter or Underwriters by the Representative and the Company as provided above, the aggregate number of Shares and Warrant which remains unpurchased on such Closing Date does not exceed one-eleventh of the aggregate number of all the Shares and Warrants that all the Underwriters are obligated to purchase on the Closing Date, then the Company shall have the right to require each non-defaulting Underwriter to purchase the number of Shares and Warrants which such Underwriter agreed to purchase hereunder at such date and, in addition, to require each non-defaulting Underwriter to purchase its pro rata share (based on the number of Shares and Warrants which such Underwriter agreed to purchase hereunder) of the Shares and Warrants of such defaulting Underwriter or Underwriters for which such arrangements have not been made; but nothing herein shall relieve a defaulting Underwriter from liability for its default. In any such case, either the Representative or the Company shall have the right to postpone the Closing Date for a period of not more than seven days in order to effect any necessary changes and arrangements (including any necessary amendments or supplements to the Registration Statement or Prospectus or any other documents), and the Company agrees to file promptly any amendments to the Registration Statement or the Prospectus which in the opinion of the Company and the Underwriters and their counsel may thereby be made necessary.

If, after giving effect to any arrangements for the purchase of the Shares and Warrants of a defaulting Underwriter or Underwriters by the Representative and the Company as provided above, the aggregate number of such Shares and Warrants which remains unpurchased exceeds 10% of the aggregate number of all the Shares and Warrants to be purchased at such date, then this Agreement shall terminate, without liability on the part of any non-defaulting Underwriter to the Company, and without liability on the part of the Company, except that the provisions of Sections 4(b), 5, 6 and 7(b) shall at all times be effective and shall survive such termination. The provisions of this Section 8 shall not in any way affect the liability of any defaulting Underwriter to the Company or the nondefaulting Underwriters arising out of such default. The term "Underwriter" as used in this Agreement shall include any person substituted under this Section 8 with like effect as if such person had originally been a party to this Agreement with respect to such Shares and Warrants.

9. Miscellaneous. The respective agreements, representations, warranties, indemnities, rights of contribution and other statements of the Company, and the several Underwriters, as set forth in this Agreement or made by or on behalf of them pursuant to this Agreement, shall remain in full force and effect, regardless of any investigation (or any statement as to the results thereof) made by or on behalf of any Underwriter or the Company or any of their respective officers, directors or controlling persons referred to in Sections 5 and 6 hereof, and shall survive delivery of and payment for the Shares and Warrants. In addition, the provisions of Sections 4(b), 5, 6 and 7(b) shall survive the termination or cancellation of this Agreement.

This Agreement has been and is made for the benefit of the Underwriters, the Company and their respective successors and assigns, and, to the extent expressed herein, for the benefit of persons controlling any of the Underwriters, or the Company, and directors and officers of the Company, and their respective successors and assigns, and no other person shall acquire or have any right under or by virtue of this Agreement. The term "successors and assigns" shall not include any purchaser of Shares and Warrants from any Underwriter merely because of such purchase. 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.

No amendment or waiver of any provision of this Agreement, nor any consent or approval to any departure therefrom, shall in any event be effective unless and until the same shall be in writing and signed by the Company and the Representative.

All notices and communications hereunder shall be in writing and mailed or delivered or by telephone or telegraph if subsequently confirmed in writing, (a) if to the Representative, c/o Oppenheimer & Co. Inc., 85 Broad Street, New York, New York 10004 Attention: Equity Capital Markets, with a copy to Oppenheimer & Co. Inc., 85 Broad Street, New York, New York 10004 Attention: General Counsel, and to Lowenstein Sandler LLP, 1251 Avenue of the Americas, New York, New York 10020 Attention: John D. Hogoboom and (b) if to the Company, to its agent for service as such agent's address appears on the cover page of the Registration Statement with a copy to Cooley LLP, 1114 Avenue of the Americas, New York, New York 10036 Attention: Yvan-Claude Pierre.

This Agreement and any claim, controversy or dispute arising under or related to this Agreement shall be governed by and construed in accordance with the laws of the State of New York applicable to agreements made and to be performed in such state.

This Agreement may be signed in any number of counterparts, each of which shall be an original, with the same effect as if the signatures thereto and hereto were upon the same instrument. The headings herein are included for convenience of reference only and are not intended to be part of, or to affect the meaning or interpretation of, this Agreement. 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.

Please confirm that the foregoing correctly sets forth the agreement among us.

Very truly yours,

OUTLOOK THERAPEUTICS, INC.

By

Name: Lawrence A. Kenyon

Title: Chief Executive and Financial Officer

Confirmed:

OPPENHEIMER & CO. INC.

Acting severally on behalf of itself
and as representative of the several
Underwriters named in Schedule I annexed
hereto.

By OPPENHEIMER & CO. INC.

By _____

Name:

Title:

[Signature Page to Underwriting Agreement]

SCHEDULE I

Name	Number of Shares to Be Purchased	Number of 15- Month Warrants to Be Purchased	Number of Five- Year Warrants to Be Purchased
Oppenheimer & Co. Inc.			
Aegis Capital Corporation			
TOTAL			

Schedule I-1

SCHEDULE II

Lock-Up Signatories

Lawrence A. Kenyon
Kenneth M. Bahrt, M.D.
Terry Dagnon
Jeff Evanson
Ralph H. "Randy" Thurman
Yezan Haddadin
Kurt J. Jilzinger
Pankaj Mohan, Ph.D.
Faisal G. Sukhtian
Joe Thomas
Joerg Windisch, Ph.D.

SCHEDULE III

Issuer Free Writing Prospectuses

Schedule III-1

Exhibit A
FORM OF LOCK-UP AGREEMENT

_____, 2019

Oppenheimer & Co. Inc.
As Representative of the Several Underwriters
c/o Oppenheimer & Co. Inc.
85 Broad Street
New York, New York 10004

Re: Public Offering of Outlook Therapeutics, Inc.

Ladies and Gentlemen:

The undersigned executive officer and/or director of Outlook Therapeutics, Inc. (the "Company"), who may be a holder of common stock, par value \$0.01 per share of the Company ("Common Stock"), or rights to acquire Common Stock, understands that you, as Representative of the several Underwriters, propose to enter into an Underwriting Agreement (the "Underwriting Agreement") with the Company, providing for the public offering (the "Public Offering") by the several Underwriters named in Schedule I to the Underwriting Agreement (the "Underwriters"), of shares of Common Stock of the Company (the "Securities"). Capitalized terms used herein and not otherwise defined shall have the meanings set forth in the Underwriting Agreement.

In consideration of the Underwriters' agreement to enter into the Underwriting Agreement and to proceed with the Public Offering of the Securities, and for other good and valuable consideration receipt of which is hereby acknowledged, the undersigned hereby agrees, by executing this lock-up agreement (this "Letter Agreement"), for the benefit of the Company, you and the other Underwriters that, without your prior written consent on behalf of the Underwriters, the undersigned will not, during the period commencing as of the date hereof and ending 90 days after the date of the final prospectus (the "Prospectus") relating to the Public Offering (the "Lock-up Period"), directly or indirectly (1) offer, pledge, assign, encumber, announce the intention to sell, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, any shares of Common Stock, or any securities convertible into or exercisable or exchangeable for Common Stock (together with the Common Stock, the "Common Securities") owned either of record or beneficially (as defined in the Securities Exchange Act of 1934, as amended (the "Exchange Act"), by the undersigned on the date hereof or hereafter acquired or (2) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of the Common Stock, whether any such transaction described in clause (1) or (2) above is to be settled by delivery of Common Stock or such other securities, in cash or otherwise, or publicly announce an intention to do any of the foregoing. In addition, the undersigned agrees that, without your prior written consent on behalf of the Underwriters, it will not, during the Lock-up Period, make any demand for or exercise any right with respect to, the registration of any Common Securities.

Exhibit A-1

The foregoing restrictions shall not apply to:

1. transfers of Common Securities as a gift or gifts;
2. transfers of Common Securities to any trust for the direct or indirect benefit of the undersigned or the immediate family (as defined below) of the undersigned;
3. if the undersigned is, or otherwise holds any Common Securities through, a corporation, partnership, limited liability company, trust or other business entity (1) transfers without consideration to another corporation, partnership, limited liability company, trust or other business entity that is a direct or indirect affiliate (as defined in Rule 405 promulgated under the Securities Act of 1933, as amended) of the undersigned or (2) distributions of Common Securities to limited partners, limited liability company members or stockholders of the undersigned;
4. transfers of Common Securities by testate or intestate succession;
5. transfers of Common Securities by operation of law;
6. the transfer of Common Securities pursuant to a bona fide third-party tender offer, merger, consolidation or other similar transaction that is approved by the Board of Directors of the Company and made to all securityholders of the Company involving a Change of Control;
7. the sale of the Securities purchased by the undersigned in the Public Offering;

provided however, in the case of clauses (1)-(5), that the transferee agrees in writing with the Representative to be bound by the terms of this Letter Agreement, and in the case of clauses (1)-(5), no filing by any party under Section 16(a) of the Exchange Act shall be required or shall be made voluntarily in connection with such transfer or sale.

For purposes of this Letter Agreement, “immediate family” shall mean any relationship by blood, marriage, domestic partnership or adoption, not more remote than first cousin and “Change of Control” shall mean the transfer (whether by tender offer, merger, consolidation or other similar transaction), in one transaction or a series of related transactions, to a person or group of affiliated persons (other than an Underwriter pursuant to the Public Offering), of the Company’s voting securities if, after such transfer, such person or group of affiliated persons would hold more than 50% of the outstanding voting securities of the Company (or the surviving entity).

In addition, the foregoing restrictions shall not apply to (i) the exercise of stock options granted pursuant to the Company's equity incentive plans in place as of the date of the Prospectus (including by way of "net" or "cashless" exercise and/or the sale of the Common Stock received upon such exercise to the Company to cover withholding tax obligations in connection with such exercise), (ii) the vesting or settlement of restricted stock units granted pursuant to the Company's equity incentive plans in place as of the date of the Prospectus (including the sale of the Common Stock received upon such vesting or settlement to cover withholding tax obligations in connection with such vesting or settlement); *provided, that*, in the cases of clauses (i) and (ii) such restrictions shall apply to any of the undersigned's Common Securities issued upon such exercise or vesting or settlement, or (iii) sales under, any contract, instruction or plan that the undersigned established prior to the date hereof and that satisfies all of the requirements of Rule 10b5-1(c)(1)(i)(B) under the Exchange Act.

In furtherance of the foregoing, the Company and its duly appointed transfer agent and registrar are hereby authorized to decline to make any transfer of Common Securities if such transfer would constitute a violation or breach of this Letter Agreement.

The undersigned hereby represents and warrants that the undersigned has full power and authority to enter into this Letter Agreement. All authority herein conferred or agreed to be conferred and any obligations of the undersigned shall be binding upon the successors, assigns, heirs or personal representatives of the undersigned.

The undersigned understands that this Letter Agreement will terminate and the undersigned shall be released from all obligations hereunder if (i) the Underwriting Agreement does not become effective by May 31, 2019, (ii) the Underwriting Agreement (other than the provisions thereof which survive termination) shall terminate or be terminated prior to payment for and delivery of the Common Stock to be sold thereunder and (iii) the Company notifies the Representative that it does not intend to proceed with the Public Offering.

The undersigned, whether or not participating in the Public Offering, understands that the Underwriters are entering into the Underwriting Agreement and proceeding with the Public Offering in reliance upon this Letter Agreement.

[Signature page follows]

This Letter Agreement shall be governed by and construed in accordance with the laws of the State of New York.

Very truly yours,

Printed Name of Stockholder

By: _____

Signature Page to Exhibit A – Form of Lock-Up Agreement

WARRANT AGREEMENT

THIS WARRANT AGREEMENT made as of April [●], 2019 (the “**Issuance Date**”), between Outlook Therapeutics, Inc., a Delaware corporation (the “**Company**”), and American Stock Transfer & Trust Company, LLC, a New York limited liability trust company (the “**Warrant Agent**”).

WHEREAS, the Company has sold (i) [●] shares of common stock, par value \$0.01 per share (the “**Common Stock**” and includes any share capital into which such Common Stock shall have been changed or any share capital resulting from a reclassification of such Common Stock), of the Company, (ii) 15-month warrants (each a “**15-Month Warrant**” and, collectively, the “**15-Month Warrants**”) to purchase [●] shares of Common Stock (collectively, the “**15-Month Warrant Shares**”), subject to adjustment as described therein, and (iii) five-year warrants (each, a “**Five-Year Warrant**,” collectively, the “**Five-Year Warrants**” and, together with the 15-Month Warrants, the “**Warrants**”) to purchase [●] shares of Common Stock (each, a “**Five-Year Warrant Share**,” collectively, the “**Five-Year Warrant Shares**” and, together with the 15-Month Warrant Shares, the “**Warrant Shares**”), subject to adjustment as described herein, pursuant to an Underwriting Agreement, dated April [●], 2019, between the Company and Oppenheimer & Co. Inc., as representative of the several underwriters named therein (the “**Underwriting Agreement**”);

WHEREAS, the Company has filed with the Securities and Exchange Commission a Registration Statement, No. 333-229761 on Form S-1 (as the same may be amended from time to time, the “**Registration Statement**”) for the registration, under the Securities Act of 1933, as amended (the “**1933 Act**”) of Common Stock, the Warrants and the Warrant Shares, and such Registration Statement was declared effective on April [●], 2019;

WHEREAS, the Company desires the Warrant Agent to act on behalf of the Company, and the Warrant Agent is willing to so act, in connection with the issuance, registration, transfer, exchange and exercise of the Warrants;

WHEREAS, the Company desires to provide for the form and provisions of the Warrants, the terms upon which they shall be issued and exercised, and the respective rights, limitation of rights, and immunities of the Company, the Warrant Agent, and the holders of the Warrants; and

WHEREAS, all acts and things have been done and performed that are necessary to make the Warrants, when executed on behalf of the Company and countersigned by or on behalf of the Warrant Agent, as provided herein, the valid, binding and legal obligations of the Company, and to authorize the execution and delivery of this Warrant Agreement.

NOW, THEREFORE, in consideration of the mutual agreements herein contained, the parties hereto agree as follows:

1. Appointment of Warrant Agent. The Company hereby appoints the Warrant Agent to act as agent for the Company for the Warrants, and the Warrant Agent hereby accepts such appointment and agrees to perform the same in accordance with the express terms and conditions set forth in this Warrant Agreement.

2. Warrants.

2.1 Form of Warrant. The Warrants shall be registered securities and shall be initially evidenced by global Warrant certificates (each a “**Global Certificate**” and collectively the “**Global Certificates**”) in the form of Exhibit A to this Warrant Agreement in the case of the Five-Year Warrants and in the form of Exhibit B to this Warrant Agreement in the case of the 15-Month Warrants, each of which shall be deposited on behalf of the Company with a custodian for The Depository Trust Company (“DTC”) and registered in the name of Cede & Co., a nominee of DTC. If DTC subsequently ceases to make its settlement system available for the Warrants, the Company may instruct the Warrant Agent regarding making arrangements for book-entry settlement. In the event that the Warrants are not eligible for, or it is no longer necessary to have the Warrants available in, registration in the name of Cede & Co., a nominee of DTC, the Company may instruct the Warrant Agent to provide written instructions to DTC to deliver to the Warrant Agent for cancellation the Global Certificates, and the Company shall instruct the Warrant Agent to deliver to each Holder (as defined below) separate certificates evidencing Warrants (“**Definitive Certificates**” and, together with the Global Certificates, “**Warrant Certificates**”), in the form of Exhibit C to this Warrant Agreement in the case of the Five-Year Warrants and Exhibit D to this Warrant Agreement in the case of the 15-Month Warrants. The Warrants represented by the Global Certificates are referred to as “**Global Warrants**”.

2.2 Registration.

2.2.1 Warrant Register. The Warrant Agent shall maintain books (“**Warrant Register**”) for the registration of original issuance and the registration of transfer of the Warrants. Any Person in whose name ownership of a beneficial interest in the Warrants evidenced by a Global Certificate is recorded in the records maintained by DTC or its nominee shall be deemed the “beneficial owner” thereof, *provided* that all such beneficial interests shall be held through a Participant (as defined below), which shall be the registered holder of such Warrants.

2.2.2 Issuance of Warrants. Upon the initial issuance of the Warrants, the Warrant Agent shall issue the Global Certificates and deliver the Warrants in the DTC settlement system in accordance with written instructions delivered to the Warrant Agent by the Company. Ownership of beneficial interests in the Warrants shall be shown on, and the transfer of such ownership shall be effected through, records maintained (i) by DTC and (ii) by institutions that have accounts with DTC (each, a “**Participant**”), subject to a Holder’s right to elect to receive a Warrant in certificated form in the form of Exhibit C to this Warrant Agreement in the case of the Five-Year Warrants and Exhibit D to this Warrant Agreement in the case of the 15-Month Warrants. Any Holder desiring to elect to receive a Warrant in certificated form shall make such request in writing delivered to the Warrant Agent pursuant to Section 2.2.6, and shall surrender to the Warrant Agent the interest of the Holder on the books of the Participant evidencing the Warrants that are to be represented by a Definitive Certificate through the DTC settlement system. Thereupon, the Warrant Agent shall countersign and deliver to the person entitled thereto a Warrant Certificate or Warrant Certificates, as the case may be, as so requested.

2.2.3 Beneficial Owner; Holder. Prior to due presentment for registration of transfer of any Warrant, the Company and the Warrant Agent may deem and treat the person in whose name that Warrant shall be registered on the Warrant Register (the “**Holder**”) as the absolute owner of such Warrant for purposes of any exercise thereof, and for all other purposes, and neither the Company nor the Warrant Agent shall be affected by any notice to the contrary. Notwithstanding the foregoing, nothing herein shall prevent the Company, the Warrant Agent or any agent of the Company or the Warrant Agent from giving effect to any written certification, proxy or other authorization furnished by DTC governing the exercise of the rights of a holder of a beneficial interest in any Warrant. The rights of beneficial owners in a Warrant evidenced by a Global Certificate shall be exercised by the Holder or a Participant through the DTC system, except to the extent set forth herein or in such Global Certificate.

2.2.4 Execution. The Warrant Certificates shall be executed on behalf of the Company by any authorized officer of the Company (an “**Authorized Officer**”), which need not be the same authorized signatory for all of the Warrant Certificates, either manually or by facsimile signature. The Warrant Certificates shall be countersigned by an authorized signatory of the Warrant Agent, which need not be the same signatory for all of the Warrant Certificates, and no Warrant Certificate shall be valid for any purpose unless so countersigned. In case any Authorized Officer of the Company that signed any of the Warrant Certificates ceases to be an Authorized Officer of the Company before countersignature by the Warrant Agent and issuance and delivery by the Company, such Warrant Certificates, nevertheless, may be countersigned by the Warrant Agent, issued and delivered with the same force and effect as though the person who signed such Warrant Certificates had not ceased to be such officer of the Company; and any Warrant Certificate may be signed on behalf of the Company by any person who, at the actual date of the execution of such Warrant Certificate, shall be an Authorized Officer of the Company authorized to sign such Warrant Certificate, although at the date of the execution of this Warrant Agreement any such person was not such an Authorized Officer.

2.2.5 Proxies. The Holder of a Warrant may grant proxies or otherwise authorize any person, including the Participants and beneficial holders that may own interests through the Participants, to take any action that a Holder is entitled to take under this Warrant Agreement or the Warrants; *provided, however*, that at all times that Warrants are evidenced by a Book Entry Warrant Certificate, exercise of those Warrants shall be effected on their behalf by Participants through DTC in accordance the procedures administered by DTC.

2.2.6 Warrant Certificate Request. A Holder has the right to elect at any time or from time to time a Warrant Exchange (as defined below) pursuant to a Warrant Certificate Request Notice (as defined below). Upon written notice by a Holder to the Warrant Agent for the exchange of some or all of such Holder’s Warrants for a Definitive Certificate evidencing the same number of Warrants, which request shall be in the form attached hereto as Exhibit E in the case of the Five-Year Warrants and Exhibit F to this Warrant Agreement in the case of the 15-Month Warrants (a “**Warrant Certificate Request Notice**” and the date of delivery of such Warrant Certificate Request Notice by the Holder, the “**Warrant Certificate Request Notice Date**” and the deemed surrender upon delivery by the Holder of a number of Global Warrants for the same number of Warrants evidenced by a Definitive Certificate, a “**Warrant Exchange**”), the Warrant Agent shall, as soon as practicable, effect the Warrant Exchange and shall, as soon as practicable, issue and deliver to the Holder a Definitive Certificate for such number of Warrants in the name set forth in the Warrant Certificate Request Notice. Such Definitive Certificate shall be dated the original issue date of the Warrants, shall be manually executed by an authorized signatory of the Company, shall be in the form attached hereto as Exhibit C in the case of the Five-Year Warrants and in the form attached hereto as Exhibit D in the case of the 15-Month Warrants, and shall be reasonably acceptable in all respects to such Holder. In connection with a Warrant Exchange, the Company agrees to deliver, or to direct the Warrant Agent to deliver, the Definitive Certificate to the Holder within three (3) Business Days of the Warrant Certificate Request Notice pursuant to the delivery instructions in the Warrant Certificate Request Notice (“**Warrant Certificate Delivery Date**”). If the Company or the Warrant Agent fails for any reason to deliver to the Holder the Definitive Certificate subject to the Warrant Certificate Request Notice by the Warrant Certificate 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 evidenced by such Definitive Certificate (based on the Weighted Average Price (as defined in the Warrants) of the Common Stock on the Warrant Certificate Request Notice Date), \$10 per Business Day for each Business Day after such Warrant Certificate Delivery Date until such Definitive Certificate is delivered or, prior to delivery of such Warrant Certificate, the Holder rescinds such Warrant Exchange. The Company covenants and agrees that, upon the date of delivery of the Warrant Certificate Request Notice, the Holder shall be deemed to be the holder of the Definitive Certificate and, notwithstanding anything to the contrary set forth herein, the Definitive Certificate shall be deemed for all purposes to contain all of the terms and conditions of the Warrants evidenced by such Warrant Certificate and the terms of this Warrant Agreement, shall not apply to the Warrants evidenced by the Definitive Certificate. The Warrant Agent shall have no responsibility for any liquidated damages that may be payable or paid to any Person under this paragraph for any failure by the Warrant Agent to deliver to the Holder the Definitive Certificate, on the Company’s behalf. In addition, the Company shall indemnify and hold harmless the Warrant Agent against all claims made against the Warrant Agent for any such failure except that the Company shall not be obligated to provide any such indemnification if it is determined by a final, non-appealable judgment of a court of competent jurisdiction that such failure is due to the Warrant Agent’s gross negligence, bad faith or willful misconduct.

2.2.7 For purposes of clarity, without limiting the rights and immunities of the Warrant Agent, if there is a conflict between the express terms of this Warrant Agreement and any Definitive Certificate in the form of Exhibit C in the case of the Five-Year Warrants and Exhibit D in the case of the 15-Month Warrants hereto with respect to the terms of the Warrants, the terms of such Definitive Certificate shall govern and control.

2.3 Detachability of Warrants. The Common Stock and the Warrants will be issued separately and will be separately transferable immediately upon issuance.

3. Terms and Exercise of Warrants.

3.1 Exercise Price. The exercise price per whole share of the Common Stock under each Warrant shall be \$[●], subject to adjustment hereunder (the “**Exercise Price**”).

3.2 Duration of Warrants. A Warrant may be exercised only during the period (the “**Exercise Period**”) commencing on the Issuance Date and terminating at 5:00 P.M., Eastern time on the date sixty (60) months after the Issuance Date in the case of the Five-Year Warrants and on the date fifteen (15) months after the Issuance Date in the case of the 15-Month Warrants or, if any such date falls on a day other than a Business Day or on which trading does not take place on the Principal Market (a “**Holiday**”), the next day that is not a Holiday (the “**Expiration Date**”). Each Warrant not exercised on or before the applicable Expiration Date shall become void, and all rights thereunder and all rights in respect thereof under this Warrant Agreement shall cease at the close of business on the applicable Expiration Date.

3.3 Exercise of Warrants.

3.3.1 Exercise and Payment. A registered holder may exercise a Warrant by delivering, not later than 5:00 P.M., Eastern time, on any Business Day during the Exercise Period (the “**Exercise Date**”) to the Warrant Agent at its offices designated for such purpose (i) the Warrant Certificate evidencing the Warrants to be exercised, or, in the case of a Book-Entry Warrant Certificate, the Warrants to be exercised (the “**Book-Entry Warrants**”) free on the records of the Depository to an account of the Warrant Agent at the Depository designated for such purpose in writing by the Warrant Agent to the Depository from time to time, and (ii) an election to purchase the Warrant Shares underlying the Warrants to be exercised (the “**Election to Purchase**” and together with the Warrant Certificates and the Book-Entry Warrants, the “**Warrant Exercise Documents**”), properly completed and duly executed by the registered holder on the reverse of the Warrant Certificate, accompanied by a signature guarantee and such other documentation as the Warrant Agent may reasonably request, or, in the case of a Book-Entry Warrant Certificate, properly delivered by the Participant in accordance with the Depository’s procedures. Within one Trading Day after the Exercise Date, such holder must pay the Warrant Price for each Warrant to be exercised in lawful money of the United States of America by wire, certified or official bank check, or wire transfer, in immediately available funds unless such holder has elected to make a cashless exercise pursuant to Section 3.3.8. The term “**Warrant Price**” as used in this Warrant Agreement refers to price per share of Common Stock at which shares may be purchased at the time the Warrant is exercised.

If any of (A) the Warrant Certificate or the Book-Entry Warrants, (B) the Election to Purchase, or (C) the Warrant Price therefor, is received by the Warrant Agent after 5:00 P.M., Eastern time, on the specified Exercise Date, the Warrants will be deemed to be received on the Business Day next succeeding the Exercise Date. If the date specified as the Exercise Date is not a Business Day, the Warrants will be deemed to be received on the next succeeding day that is a Business Day. If the Warrants are received or deemed to be received after the Expiration Date, the exercise thereof will be null and void and any funds delivered to the Warrant Agent will be returned to the registered holder or Participant, as the case may be, as soon as practicable. In no event will a registered holder or Participant be entitled to interest accrued on funds deposited with the Warrant Agent in respect of an exercise or attempted exercise of Warrants. The Warrant Agent shall not have any responsibility or liability relating to the determination as to the validity of any exercise of Warrants which determination will be made by the Company and the applicable registered holder, and the Warrant Agent may rely upon the instructions of the Company regarding the validity of any exercise of Warrants. The Warrant Agent shall not have any obligation to inform a registered holder of the invalidity of any exercise of Warrants. If the Company believes that an exercise by a registered holder is invalid the Company will promptly notify such registered holder of the such fact and the reasons why it believes the exercise was invalid and will provide a copy of such notice to the Warrant Agent as soon as practicable.

The Warrant Agent shall forward funds received for warrant exercises in a given month by the 5th Business Day of the following month by wire transfer to an account designated by the Company in writing.

All funds received by the Warrant Agent under this Warrant Agreement that are to be distributed or applied by the Warrant Agent in the performance of services (the “**Funds**”) shall be held by the Warrant Agent as agent for the Company and deposited in one or more bank accounts to be maintained by the Warrant Agent in its name as agent for the Company. Until paid pursuant to the terms of this Warrant Agreement, the Warrant Agent will hold the Funds through such accounts in: deposit accounts of commercial banks with Tier 1 capital exceeding \$1 billion or with an average rating above investment grade by Standard and Poor’s Corporation (LT Local Issuer Credit Rating), Moody’s Investors Service, Inc. (Long Term Rating) and Fitch Ratings, Inc. (LT Issuer Default Rating) (each as reported by Bloomberg Finance L.P.). The Warrant Agent shall have no responsibility or liability for any diminution of the Funds that may result from any deposit made by the Warrant Agent in accordance with this paragraph, including any losses resulting from a default by any bank, financial institution or other third party. The Warrant Agent may from time to time receive interest, dividends or other earnings in connection with such deposits. The Warrant Agent shall not be obligated to pay such interest, dividends or earnings to the Company, any holder or any other Person.

3.3.2 Issuance of Certificates. The Warrant Agent shall, within a reasonable time, advise the Company and the Company’s transfer agent and registrar (the “**Transfer Agent**”) in respect of (a) the Warrant Shares issuable upon such exercise as to the number of Warrants exercised in accordance with the terms and conditions of this Warrant Agreement, (b) the instructions of each registered holder or Participant, as the case may be, with respect to delivery of the Warrant Shares issuable upon such exercise, and the delivery of definitive Warrant Certificates, as appropriate, evidencing the balance, if any, of the Warrants remaining after such exercise, (c) in case of a Book-Entry Warrant Certificate, the notation that shall be made to the records maintained by the Depository, its nominee for each Book-Entry Warrant Certificate, or a Participant, as appropriate, evidencing the balance, if any, of the Warrants remaining after such exercise and (d) such other information as the Company, the Warrant Agent or such transfer agent and registrar shall reasonably require. So long as the Holder delivers the Warrant Price (or notice of a Cashless Exercise, if applicable) on or prior to the first (1st) Trading Day following the date on which the Warrant Exercise Documents have been delivered to the Warrant Agent, then on or prior to the earlier of (i) the second (2nd) Trading Day and (ii) the number of Trading Days comprising the Standard Settlement Period, in each case following the date on which the Warrant Exercise Documents have been delivered to the Company, or, if the Holder does not deliver the Warrant Price (or notice of a Cashless Exercise, if applicable) on or prior to the first (1st) Trading Day following the date on which the Warrant Exercise Documents have been delivered to the Warrant Agent, then on or prior to the first (1st) Trading Day following the date on which the Warrant Price (or notice of a Cashless Exercise) is delivered (such earlier date, or if later, the earliest day on which the Company is required to deliver Warrant Shares pursuant to this Section 1(a), the “**Share Delivery Date**”), the Company shall cause the Warrant Agent to (X) *provided* that the Transfer Agent is participating in the DTC Fast Automated Securities Transfer Program, credit such aggregate number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the Holder’s or its designee’s balance account with DTC through its Deposit / Withdrawal At Custodian system, or (Y) if the Transfer Agent is not participating in the DTC Fast Automated Securities Transfer Program, issue and dispatch by overnight courier to the address or e-mail address as specified in the Warrant Exercise Documents, evidence of credit of book-entry shares, registered 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. If the Warrant Agent fails for any reason to deliver to such registered holder or Participant, as the case may be, the Warrant Shares subject to an exercise notice by the Share Delivery Date, the Company shall pay to the registered 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 Weighted Average Price of the Common Stock on the date of the applicable exercise notice), \$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 Share Delivery Date until such Warrant Shares are delivered or the registered holder rescinds such exercise. The Warrant Agent shall have no responsibility for any liquidated damages that may be payable or paid to any registered holder or Participant under this paragraph for any failure by the Warrant Agent to execute, issue and deliver, on the Company’s behalf, the Warrant Shares as required by this paragraph. In addition, the Company shall indemnify and hold harmless the Warrant Agent against all claims made against the Warrant Agent for any such failure except that the Company shall not be obligated to provide any such indemnification if it is determined by a final, non-appealable judgment of a court of competent jurisdiction that such failure is due to the Warrant Agent’s gross negligence, bad faith or willful misconduct.

If the Warrant Agent fails to comply with the preceding paragraphs in this Section 3.3.2 by the Share Delivery Date, then, without limiting the rights and immunities of the Warrant Agent hereunder, in addition to other rights it may have hereunder, the registered holder or Participant will have the right to rescind its exercise.

3.3.3 Valid Issuance. All shares of Common Stock issued upon the proper exercise of a Warrant in conformity with this Warrant Agreement shall be validly issued, fully paid and nonassessable.

3.3.4 Dividends. The accrual of dividends, if any, on the Warrant Shares issued hereunder will be governed by the terms generally applicable to the Common Stock. From and after the issuance of such Warrant Shares, the former holder of the Warrants exercised will be entitled to the benefits generally available to other holders of Common Stock, including the accrual of dividends, if any, on such Warrant Shares even prior to exercise of such Warrant Shares, and such former holder's right to receive payments of dividends and any other amounts payable in respect of the Warrant Shares shall be governed by, and shall be subject to, the terms and provisions generally applicable to the Common Stock.

3.3.5 No Fractional Exercise. A registered holder may exercise a Warrant from time to time only for whole shares of Common Stock. No fractional shares or scrip representing fractional shares shall be issued upon the exercise of a Warrant. As to any fraction of a share that the holder would otherwise be entitled to purchase upon such exercise, the Company shall pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the Exercise Price. If fewer than all of the Warrants evidenced by a Warrant Certificate are exercised, a new Warrant Certificate for the number of unexercised Warrants remaining shall be executed by the Company and countersigned by the Warrant Agent as provided in Section 2 of this Warrant Agreement, and delivered to the holder of the Warrant Certificate at the address specified on the books of the Warrant Agent or as otherwise specified in writing by such registered holder. If fewer than all the Warrants evidenced by a Book-Entry Warrant Certificate are exercised, a notation shall be made to the records maintained by the Depository, its nominee for each Book-Entry Warrant Certificate, or a Participant, as appropriate, evidencing the balance of the Warrants remaining after such exercise. Whenever a payment for fractional shares is to be made by the Warrant Agent under this Warrant Agreement, the Company shall promptly prepare and deliver to the Warrant Agent a certificate setting forth in reasonable detail the facts related to such payments and the prices and formulas utilized in calculating such payments. The Warrant Agent shall be fully protected in relying upon such a certificate and shall have no duty with respect to, and shall not be deemed to have knowledge of, any payment for fractional shares under this Warrant Agreement relating to the payment of fractional shares unless and until the Warrant Agent shall have received such a certificate and sufficient monies. The Company shall provide an initial funding of one thousand dollars (\$1,000) for the purpose of issuing cash in lieu of fractional shares. From time to time thereafter, the Warrant Agent may request additional funding to cover payments for fractional Warrant Shares. The Warrant Agent shall have no obligation to make such payments for fractional Warrant Shares unless the Company shall have provided the necessary funds to pay in full all amounts due and payable with respect thereto. Upon expiration of the term of all Warrants or the earlier exercise of all Warrants any balance remaining of such funds shall be paid to the Company.

3.3.6 No Transfer Taxes. Issuance of Warrant Shares shall be made without charge to a registered 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 registered holder or in such name or names as may be directed by the registered holder; *provided, however*, that in the event Warrant Shares are to be issued in a name other than the name of the registered holder, a Warrant when surrendered for exercise shall be accompanied by the Assignment Form attached hereto duly executed by the registered 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 exercise notice. The Warrant Agent shall not have any duty or obligation to take any action under any section of this Warrant Agreement that requires the payment of taxes and/or charges unless and until it is satisfied that all such payments have been made.

3.3.7 Date of Issuance. Each person in whose name any book-entry notation for shares of Common Stock is issued shall for all purposes be deemed to have become the holder of record of such shares on the date on which the Warrant was surrendered and payment of the Warrant Price was made, irrespective of the date of such book entry, except that, if the date of such surrender and payment is a date when the stock transfer books of the Company are closed, such person shall be deemed to have become the holder of such shares at the close of business on the next succeeding date on which the stock transfer books are open. Upon receipt by the Company of a duly executed Notice of Exercise (which may be by facsimile or email), a registered holder shall be deemed to have exercised its Warrant as specified in the Notice of Exercise for purposes of Regulation SHO promulgated under the Securities Exchange Act of 1934, as amended (the “**1934 Act**”).

3.3.8 Optional Cashless Exercise. A Cashless Exercise (as defined below) may occur (i) in the case of the 15-Month Warrants only, in whole or in part for a number of whole 15-Month Warrant Shares after May [●], 2019 (the “**Cashless Date**”), if the Weighted Average Price of the Common Stock on any single Trading Day on or after the Cashless Date and prior to the date of such Cashless Exercise fails to exceed the Exercise Price in effect as of the date hereof (subject to adjustment for any stock splits, stock dividends, stock combinations, recapitalizations and similar events) in which event, in lieu of the formula below, the aggregate number of 15-Month Warrant Shares issuable in such cashless exercise pursuant to any given Exercise Notice electing to effect a Cashless Exercise shall equal the product of (x) the aggregate number of 15-Month Warrant Shares for which the 15-Month Warrants are exercised as if such exercise were by means of a cash exercise rather than a Cashless Exercise and (y) 0.50; and (ii) if at any time during the term of this Warrant Agreement there is no effective registration statement registering, or no current prospectus available for, the issuance or resale of the Warrant Shares by the registered holder, then the Warrants 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 determined according to the following formula (a “**Cashless Exercise**”):

$$\text{Net Number} = \frac{(A \times B) - (A \times C)}{B}$$

For purposes of the foregoing formula:

A= the total number of shares with respect to which the Warrants are then being exercised.

B= as applicable: (i) the Closing Sale Price of the Common Stock on the Trading Day immediately preceding the date of the applicable Exercise Notice if such Exercise Notice is (1) both executed and delivered pursuant to Section 1(a) hereof on a day that is not a Trading Day or (2) both executed and delivered pursuant to Section 1(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) at the option of the Holder, either (y) the Weighted Average Price on the Trading Day immediately preceding the date of the applicable Notice of Exercise or (z) the Bid Price of the Common Stock as of the time of the Holder’s execution of the applicable Exercise Notice if such Exercise Notice is executed during “regular trading hours” on a Trading Day and is delivered within two (2) hours thereafter (including until two (2) hours after the close of “regular trading hours” on a Trading Day) pursuant to Section 1(a) hereof or (iii) the Closing Sale Price of the Common Stock on the date of the applicable Exercise Notice if the date of such Exercise Notice is a Trading Day and such Exercise Notice is both executed and delivered pursuant to Section 1(a) hereof after the close of “regular trading hours” on such Trading Day.

C= the Exercise Price then in effect for the applicable Warrant Shares at the time of such exercise.

The Company agrees to make all calculations related to a Cashless Exercise and will provide the Warrant Agent with issuance instructions.

If Warrant Shares are issued in such a cashless exercise, the Company acknowledges and agrees that in accordance with Section 3(a)(9) of the 1933 Act, the Warrant Shares shall take on the registered characteristics of the Warrants being exercised, and the holding period of the Warrants being exercised may be tacked on to the holding period of the Warrant Shares. The Company agrees not to take any position contrary to this Section 3.3.8.

3.3.9 Disputes. In the case of a dispute as to the determination of the Exercise Price or the arithmetic calculation of the Warrant Shares, the Company shall promptly issue to the registered holder the number of Warrant Shares that are not disputed. Without limiting the rights of a Holder to receive Warrant Shares on a “cashless exercise,” and to receive the cash payments contemplated pursuant to Sections 3.3.2, 3.3.5, 3.4 and 4.5, in no event will the Company be required to pay to the Holder any cash or other consideration or otherwise net cash settle a Warrant exercise.

3.3.10 Limitations on Exercise. Notwithstanding anything to the contrary contained herein, the Company shall not effect the exercise of any portion of a Warrant, and the Holder shall not have the right to exercise any portion of a Warrant, pursuant to the terms and conditions of the Warrant and any such exercise shall be null and void and treated as if never made, to the extent that after giving effect to such exercise, the Holder together with the other Attribution Parties collectively would beneficially own in excess of [4.99][9.99%] (the “**Maximum Percentage**”) of the number of shares of Common Stock outstanding immediately after giving effect to such exercise. For purposes of the foregoing sentence, the aggregate number of shares of Common Stock beneficially owned by the Holder and the other Attribution Parties shall include the number of shares of Common Stock held by the Holder and all other Attribution Parties plus the number of shares of Common Stock issuable upon exercise of the Warrants with respect to which the determination of such sentence is being made, but shall exclude the number of shares of Common Stock that would be issuable upon (A) exercise of the remaining, unexercised portion of the Warrants beneficially owned by the Holder or any of the other Attribution Parties and (B) exercise or conversion of the unexercised or unconverted portion of any other securities of the Company (including, without limitation, any convertible notes or convertible preferred stock or warrants, including the other Warrants) beneficially owned by the Holder or any other Attribution Party subject to a limitation on conversion or exercise analogous to the limitation contained in this Section 3.3.10. For purposes of this Section 3.3.10, beneficial ownership shall be calculated in accordance with Section 13(d) of the 1934 Act. For purposes of the Warrants, in determining the number of outstanding shares of Common Stock the Holder may acquire upon the exercise of the Warrants without exceeding the Maximum Percentage, the Holder may rely on the number of outstanding shares of Common Stock as reflected in (x) the Company’s most recent Annual Report on Form 10-K, Quarterly Report on Form 10-Q and Current Reports on Form 8-K or other public filing with the Securities and Exchange Commission (the “**SEC**”), as the case may be, (y) a more recent public announcement by the Company or (z) any other written notice by the Company or the Transfer Agent setting forth the number of shares of Common Stock outstanding (the “**Reported Outstanding Share Number**”). If the Company receives an Exercise Notice from the Holder at a time when the actual number of outstanding shares of Common Stock is less than the Reported Outstanding Share Number, the Company shall (i) notify the Holder in writing of the number of shares of Common Stock then outstanding and, to the extent that such Exercise Notice would otherwise cause the Holder’s beneficial ownership, as determined pursuant to this Section 3.3.10, to exceed the Maximum Percentage, the Holder must notify the Company of a reduced number of Warrant Shares to be purchased pursuant to such Exercise Notice (the number of shares by which such purchase is reduced, the “**Reduction Shares**”) and (ii) as soon as reasonably practicable, the Company shall return to the Holder any exercise price paid by the Holder for the Reduction Shares. For any reason at any time, upon the written or oral request of the Holder, the Company shall within one (1) Business Day confirm orally and in writing or by electronic mail 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 the Warrants, by the Holder and any other Attribution Party since the date as of which the Reported Outstanding Share Number was reported. In the event that the issuance of Common Stock to the Holder upon exercise of the Warrants results in the Holder and the other Attribution Parties being deemed to beneficially own, in the aggregate, more than the Maximum Percentage of the number of outstanding shares of Common Stock (as determined under Section 13(d) of the 1934 Act), the number of shares so issued by which the Holder’s and the other Attribution Parties’ aggregate beneficial ownership exceeds the Maximum Percentage (the “**Excess Shares**”) shall be deemed null and void and shall be cancelled ab initio, and the Holder shall not have the power to vote or to transfer the Excess Shares. As soon as reasonably practicable after the issuance of the Excess Shares has been deemed null and void, the Company shall return to the Holder the exercise price paid by the Holder for the Excess Shares. Upon delivery of a written notice to the Company, the Holder may from time to time increase or decrease the Maximum Percentage to any other percentage not in excess of 9.99% as specified in such notice; *provided* that (i) any such increase in the Maximum Percentage will not be effective until the sixty-first (61st) day after such notice is delivered to the Company and (ii) any such increase or decrease will apply only to the Holder and the other Attribution Parties and not to any other holder of Warrants that is not an Attribution Party of the Holder. For purposes of clarity, the shares of Common Stock issuable pursuant to the terms of the Warrants in excess of the Maximum Percentage shall not be deemed to be beneficially owned by the Holder for any purpose including for purposes of Section 13(d) or Rule 16a-1(a) (1) of the 1934 Act. No prior inability to exercise the Warrants pursuant to this paragraph shall have any effect on the applicability of the provisions of this paragraph with respect to any subsequent determination of exercisability. The provisions of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 3.3.10 to the extent necessary to correct this paragraph or any portion of this paragraph which may be defective or inconsistent with the intended beneficial ownership limitation contained in this Section 3.3.10 or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitation contained in this paragraph may not be waived and shall apply to a successor holder of the Warrants.

3.4 Company's Failure to Timely Deliver Securities. If either (I) the Company shall fail for any reason or for no reason on or prior to the applicable Share Delivery Date, if (x) the Transfer Agent is not participating in the DTC Fast Automated Securities Transfer Program, to issue to the Holder by book-entry credit the number of shares of Common Stock to which the Holder is entitled and register such Common Stock on the Company's share register or (y) the Transfer Agent is participating in the DTC Fast Automated Securities Transfer Program, to credit the Holder's balance account with DTC, for such number of shares of Common Stock to which the Holder is entitled upon the Holder's exercise of the Warrants or (II) a registration statement (which may be the Registration Statement) covering the issuance or resale of the Warrant Shares that are the subject of the Exercise Notice (the "**Exercise Notice Warrant Shares**") is not available for the issuance or resale, as applicable, of such Exercise Notice Warrant Shares and (x) the Company fails to promptly, but in no event later than one (1) Business Day after such registration statement becomes unavailable, to so notify the Holder and (y) the Company is unable to deliver the Exercise Notice Warrant Shares electronically without any restrictive legend by crediting such aggregate number of Exercise Notice Warrant Shares to the Holder's or its designee's balance account with DTC through its Deposit / Withdrawal At Custodian system (the event described in the immediately foregoing clause (II) is hereinafter referred to as a "**Notice Failure**" and, together with the event described in clause (I) above, an "**Exercise Failure**"), then, in addition to all other remedies available to the Holder, if on or prior to the applicable Share Delivery Date either (I) if the Transfer Agent is not participating in the DTC Fast Automated Securities Transfer Program, the Company shall fail to issue by book-entry credit to the Holder and register such shares of Common Stock on the Company's share register or, if the Transfer Agent is participating in the DTC Fast Automated Securities Transfer Program, credit the Holder's balance account with DTC for the number of shares of Common Stock to which the Holder is entitled upon the Holder's exercise hereunder or pursuant to the Company's obligation pursuant to clause (ii) below or (II) a Notice Failure occurs, and if on or after such Trading Day 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 that the Holder anticipated receiving upon such exercise from the Company (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 and other out-of-pocket expenses, if any) for the shares of Common Stock so purchased exceeds (y) 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 credit by book entry the Warrant Shares (or to electronically deliver such Warrant Shares) upon the exercise of the Warrants as required pursuant to the terms hereof. While the Warrants are outstanding, the Company shall cause its transfer agent to participate in the DTC Fast Automated Securities Transfer Program. In addition to the foregoing rights, (i) if the Company fails to deliver the applicable number of Warrant Shares upon an exercise pursuant to Section 1 by the applicable Share Delivery Date, then the Holder shall have the right to rescind such exercise in whole or in part and retain and/or have the Company return, as the case may be, any portion of the Warrants that has not been exercised pursuant to such Exercise Notice; *provided* that the rescission of an exercise shall not affect the Company's obligation to make any payments that have accrued prior to the date of such notice pursuant to this Section 3.4 or otherwise, and (ii) if a registration statement (which may be the Registration Statement) covering the issuance or resale of the Warrant Shares that are subject to an Exercise Notice is not available for the issuance or resale, as applicable, of such Exercise Notice Warrant Shares and the Holder has submitted an Exercise Notice prior to receiving notice of the non-availability of such registration statement and the Company has not already delivered the Warrant Shares underlying such Exercise Notice electronically without any restrictive legend by crediting such aggregate number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the Holder's or its designee's balance account with DTC through its Deposit / Withdrawal At Custodian system, the Holder shall have the option, by delivery of notice to the Company, to (x) rescind such Exercise Notice in whole or in part and retain or have returned, as the case may be, any portion of the Warrants that has not been exercised pursuant to such Exercise Notice; *provided* that the rescission of an Exercise Notice shall not affect the Company's obligation to make any payments that have accrued prior to the date of such notice pursuant to this Section 3.4 or otherwise, and/or (y) switch some or all of such Exercise Notice from a cash exercise to a Cashless Exercise.

3.5 Cost Basis Information. (a) In the event of a cash exercise, the Company hereby instructs the Warrant Agent to record cost basis for newly issued shares in a manner to be subsequently communicated by the Company in writing to the Warrant Agent.

(b) In the event of a cashless exercise, the Company shall provide cost basis for shares issued pursuant to a cashless exercise at the time the Company confirms the number of Warrant Shares issuable in connection with the cashless exercise to the Warrant Agent pursuant to Section 3.3.3 hereof.

3.6 Rule 144. (a) If the Warrant Shares are issued in a cashless exercise, the Company and the registered holder undertaking such cashless exercise acknowledge and agree that in accordance with Section 3(a)(9) of the 1933 Act, other than a change in law, the Warrant Shares take on the registered characteristics of the Warrants being exercised. For purposes of Rule 144(d) promulgated under the 1933 Act, as in effect on the Issuance Date, it is intended that the Warrant Shares issued in a cashless exercise shall be deemed to have been acquired by the holder of the Warrant Shares, and the holding period for the Warrant Shares shall be deemed to have commenced, on the date the Warrants being exercised were originally issued pursuant to the Underwriting Agreement.

(b) The Company shall, at all times prior to the earlier to occur of (i) the date of sale or other disposition by the holders of a Warrant of or all shares of Common Stock issued on exercise of such Warrant or (ii) the expiration or earlier termination of a Warrant if a Warrant has not been exercised in full or in part on such date, use commercially reasonable efforts to timely file all reports required under the 1934 Act and otherwise timely take all actions necessary to permit the holder of such Warrant and/or the shares of Common Stock issued on exercise thereof to sell or otherwise dispose of such Warrant and shares pursuant to Rule 144 promulgated under the 1933 Act, *provided* that the foregoing shall not apply in the event of a Merger Event following which the successor or surviving entity is not subject to the reporting requirements of the 1934 Act. If the holder of a Warrant proposes to sell Common Stock issuable upon the exercise of such Warrant in compliance with Rule 144, then, upon the holder of the Warrant's written request to the Company, the Company shall furnish to the holder of the Warrant, within five (5) Business Days after receipt of such request, a written statement confirming the Company's compliance with the filing and other requirements of such Rule 144.

4. Adjustments.

4.1 Adjustment Upon Issuance of Common Stock. If and whenever on or after the Subscription Date, the Company issues or sells, or in accordance with this Section 4.1 is deemed to have issued or sold, any shares of Common Stock (including the issuance or sale of shares of Common Stock owned or held by or for the account of the Company, but excluding shares of Common Stock deemed to have been issued or sold by the Company in connection with any Excluded Securities) for a consideration per share (the “**New Issuance Price**”) less than a price (the “**Applicable Price**”) equal to the Exercise Price in effect immediately prior to such issuance or sale or deemed issuance or sale (the foregoing a “**Dilutive Issuance**”), then immediately after such Dilutive Issuance, the Exercise Price then in effect shall be reduced to an amount equal to the New Issuance Price. For purposes of determining the adjusted Exercise Price under this Section 4.1, the following shall be applicable:

(i) Issuance of Options. If the Company in any manner grants or sells any Options and the lowest price per share for which one share of Common Stock is issuable upon the exercise of any such Options or upon conversion, exercise or exchange of any Convertible Securities issuable upon exercise of any such Options is less than the Applicable Price, then such share of Common Stock shall be deemed to be outstanding and to have been issued and sold by the Company at the time of the granting or sale of such Options for such price per share. For purposes of this Section 4.1(i), the “lowest price per share for which one share of Common Stock is issuable upon the exercise of any such Options or upon conversion, exercise or exchange of any Convertible Securities issuable upon exercise of any such Options” shall be equal to the sum of the lowest amounts of consideration (if any) received or receivable by the Company with respect to any one share of Common Stock upon the granting or sale of the Options, upon exercise of the Options and upon conversion, exercise or exchange of any Convertible Security issuable upon exercise of such Options less any consideration paid or payable by the Company with respect to such one share of Common Stock upon the granting or sale of such Options, upon exercise of such Options and upon conversion exercise or exchange of any Convertible Security issuable upon exercise of such Options. No further adjustment of the Exercise Price shall be made upon the actual issuance of such shares of Common Stock or of such Convertible Securities upon the exercise of such Options or upon the actual issuance of such shares of Common Stock upon conversion, exercise or exchange of such Convertible Securities.

(ii) Issuance of Convertible Securities. If the Company in any manner issues or sells any Convertible Securities and the lowest price per share for which one share of Common Stock is issuable upon the conversion, exercise or exchange thereof is less than the Applicable Price, then such share of Common Stock shall be deemed to be outstanding and to have been issued and sold by the Company at the time of the issuance or sale of such Convertible Securities for such price per share. For the purposes of this Section 4.1(ii), the “lowest price per share for which one share of Common Stock is issuable upon the conversion, exercise or exchange thereof” shall be equal to the sum of the lowest amounts of consideration (if any) received or receivable by the Company with respect to any one share of Common Stock upon the issuance or sale of the Convertible Security and upon conversion, exercise or exchange of such Convertible Security less any consideration paid or payable by the Company with respect to such one share of Common Stock upon the issuance or sale of such Convertible Security and upon conversion, exercise or exchange of such Convertible Security. No further adjustment of the Exercise Price shall be made upon the actual issuance of such shares of Common Stock upon conversion, exercise or exchange of such Convertible Securities, and if any such issuance or sale of such Convertible Securities is made upon exercise of any Options for which adjustment of the Exercise Price has been or is to be made pursuant to other provisions of this Section 4.1, no further adjustment of the Exercise Price shall be made by reason of such issuance or sale.

(iii) Change in Option Price or Rate of Conversion. If the purchase price provided for in any Options, the additional consideration, if any, payable upon the issue, conversion, exercise or exchange of any Convertible Securities, or the rate at which any Convertible Securities are convertible into or exercisable or exchangeable for shares of Common Stock increases or decreases at any time pursuant to the terms of such Options or Convertible Securities, the Exercise Price in effect at the time of such increase or decrease shall be adjusted to the Exercise Price that would have been in effect at such time had such Options or Convertible Securities provided for such increased or decreased purchase price, additional consideration or increased or decreased conversion rate, as the case may be, at the time initially granted, issued or sold. For purposes of this Section 4.1(iii), if the terms of any Option or Convertible Security that was outstanding as of the Subscription Date are increased or decreased in the manner described in the immediately preceding sentence, then such Option or Convertible Security and the shares of Common Stock deemed issuable upon exercise, conversion or exchange thereof shall be deemed to have been issued as of the date of such increase or decrease. No adjustment pursuant to this Section 4.1(a) shall be made if such adjustment would result in an increase of the Exercise Price then in effect. For the avoidance of doubt, no adjustment in the Exercise Price shall be made pursuant to this Section 4.1(iii) as a result of any modification of the terms of any Options or Convertible Securities after their date of issuance.

(iv) Calculation of Consideration Received. In case any Option is issued in connection with the issuance or sale of other securities of the Company, together comprising one integrated transaction, (x) the Options will be deemed to have been issued for the Option Value of such Options and (y) the other securities issued or sold in such integrated transaction shall be deemed to have been issued or sold for the difference of (I) the aggregate consideration received by the Company less any consideration paid or payable by the Company pursuant to the terms of such other securities of the Company, less (II) the Option Value of such Options; *provided*, that if the value determined pursuant to clause (y) above would result in a value less than the par value of the Common Stock, then the other securities issued or sold in such integrated transaction shall be deemed to have been issued or sold for the par value of the Common Stock. If any shares of Common Stock, Options or Convertible Securities are issued or sold or deemed to have been issued or sold for cash, the consideration received therefor will be deemed to be the net amount received by the Company therefor. If any shares of Common Stock, Options or Convertible Securities are issued or sold for a consideration other than cash, the amount of such consideration received by the Company will be the fair value of such consideration, except where such consideration consists of publicly traded securities, in which case the amount of consideration received by the Company will be the Closing Sale Price of such publicly traded securities on the date of receipt of such publicly traded securities. If any shares of Common Stock, Options or Convertible Securities are issued to the owners of the non-surviving entity in connection with any merger in which the Company is the surviving entity, the amount of consideration therefor will be deemed to be the fair value of such portion of the net assets and business of the non-surviving entity as is attributable to such shares of Common Stock, Options or Convertible Securities, as the case may be. The fair value of any consideration other than cash or publicly traded securities will be determined jointly by the Company and the Required Holders. If such parties are unable to reach agreement within ten (10) days after the occurrence of an event requiring valuation (the “**Valuation Event**”), the fair value of such consideration will be determined within five (5) Business Days after the tenth (10th) day following the Valuation Event by an independent, reputable appraiser jointly selected by the Company and the Required Holders. The determination of such appraiser shall be final and binding upon all parties absent manifest error and the fees and expenses of such appraiser shall be borne by the Company.

(v) Record Date. If the Company takes a record of the holders of Common Stock for the purpose of entitling them (A) to receive a dividend or other distribution payable in shares of Common Stock, Options or in Convertible Securities or (B) to subscribe for or purchase shares of Common Stock, Options or Convertible Securities, then such record date will be deemed to be the date of the issuance or sale of the shares of Common Stock deemed to have been issued or sold upon the declaration of such dividend or the making of such other distribution or the date of the granting of such right of subscription or purchase, as the case may be.

(vi) No Modification. So long as any of the Warrants are outstanding, the Company shall not amend, modify or change the terms of any Options or Convertible Securities (whether issued on, prior or after the Subscription Date) to lower the exercise price or conversion price thereof.

4.2 Adjustment upon Subdivision or Combination of Common Stock. If the Company at any time on or after the Issuance Date subdivides (by any stock split, stock dividend, recapitalization or otherwise) one or more classes of its outstanding shares of Common Stock into a greater number of shares, the Exercise Price in effect immediately prior to such subdivision will be proportionately reduced and the number of Warrant Shares will be proportionately increased. If the Company at any time on or after the Issuance Date combines (by combination, reverse stock split or otherwise) one or more classes of its outstanding shares of Common Stock into a smaller number of shares, the Exercise Price in effect immediately prior to such combination will be proportionately increased and the number of Warrant Shares will be proportionately decreased. Any adjustment under this Section 4.2 shall become effective at the close of business on the date the subdivision or combination becomes effective.

4.3 Purchase Rights. In addition to any adjustments pursuant to Section 4.1 above, if at any time on or after the Issuance Date and on or prior to the Expiration Date the Company grants, issues or sells any Options, Convertible Securities or rights to purchase stock, warrants, securities or other property pro rata to the record holders of any class 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 that the Holder could have acquired if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of the Warrants (without regard to any limitations or restrictions on exercise of the Warrants, including without limitation, the Maximum Percentage) 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 Common Stock are to be determined for the grant, issuance or sale of such Purchase Rights (*provided, however*, that to the extent that the Holder's right to participate in any such Purchase Right would result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, then the Holder shall not be entitled to participate in such Purchase Right to such extent (and shall not be entitled to beneficial ownership of such Common Stock as a result of such Purchase Right (and beneficial ownership) to such extent) and such Purchase Right to such extent shall be held in abeyance for the benefit of the Holder until such time or times as its right thereto would not result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, at which time or times the Holder shall be granted such right (and any Purchase Right granted, issued or sold on such initial Purchase Right or on any subsequent Purchase Right to be held similarly in abeyance) to the same extent as if there had been no such limitation).

4.4 Rights upon Distribution of Assets. In addition to any adjustments pursuant to Section 4.1 above, if, on or after the Issuance Date and on or prior to the Expiration Date, 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, options, evidence of indebtedness or any other assets 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 the Warrants, 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 the Warrants (without regard to any limitations or restrictions on exercise of the Warrants, including without limitation, the Maximum Percentage) immediately before the date on 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*, that to the extent that the Holder's right to participate in any such Distribution would result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, then the Holder shall not be entitled to participate in such Distribution to such extent (and shall not be entitled to beneficial ownership of such shares of Common Stock as a result of such Distribution (and beneficial ownership) to such extent) and the portion of such Distribution shall be held in abeyance for the benefit of the Holder until such time or times as its right thereto would not result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, at which time or times the Holder shall be granted such Distribution (and any Distributions declared or made on such initial Distribution or on any subsequent Distribution held similarly in abeyance) to the same extent as if there had been no such limitation).

4.5 Fundamental Transaction. The Company shall not enter into or be party to a Fundamental Transaction unless the Successor Entity assumes in writing all of the obligations of the Company under the Warrants in accordance with the provisions of this Section 4.5, including agreements to deliver to the Holder in exchange for the Warrants a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to the Warrants, including, without limitation, that is exercisable for a corresponding number of shares of capital stock equivalent to the shares of Common Stock acquirable and receivable upon exercise of the Warrants (without regard to any limitations on the exercise of the Warrants) prior to such Fundamental Transaction, and with an exercise price that 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 adjustments to the number of shares of capital stock and such exercise price being for the purpose of protecting the economic value of the Warrants immediately prior to the consummation of such Fundamental Transaction). Upon the consummation of each Fundamental Transaction, the Successor Entity shall succeed to, and be substituted for the Company (so that from and after the date of the applicable Fundamental Transaction, the provisions of the Warrants and the other Transaction Documents referring to the “Company” shall refer instead to the Successor Entity), and may exercise every right and power of the Company and shall assume all of the obligations of the Company under the Warrants with the same effect as if such Successor Entity had been named as the Company herein. Upon consummation of each Fundamental Transaction, the Successor Entity shall deliver to the Holder confirmation that there shall be issued upon exercise of the Warrants at any time after the consummation of the applicable Fundamental Transaction, in lieu of the shares of Common Stock (or other securities, cash, assets or other property (except such items still issuable under Sections 4.3 and 4.4 above, which shall continue to be receivable thereafter)) issuable upon the exercise of the Warrants prior to the applicable Fundamental Transaction, such shares of common stock (or its equivalent) of the Successor Entity (including its Parent Entity) that the Holder would have been entitled to receive upon the happening of the applicable Fundamental Transaction had the Warrants been exercised immediately prior to the applicable Fundamental Transaction (without regard to any limitations on the exercise of the Warrants), as adjusted in accordance with the provisions of the Warrants. Notwithstanding the foregoing, and without limiting Section 3.3.10 hereof, the Holder may elect, at its sole option, by delivery of written notice to the Company to waive this Section 4.4 to permit the Fundamental Transaction without the assumption of the Warrants. In addition to and not in substitution for any other rights hereunder, prior to the consummation of each Fundamental Transaction pursuant to which holders of shares of Common Stock are entitled to receive securities or other assets with respect to or in exchange for shares of Common Stock (a “**Corporate Event**”), the Company shall make appropriate provision to insure that the Holder will thereafter have the right to receive upon an exercise of the Warrants at any time after the consummation of the applicable Fundamental Transaction but prior to the Expiration Date, in lieu of the shares of the Common Stock (or other securities, cash, assets or other property (except such items still issuable under Sections 4.3 and 4.4 above, which shall continue to be receivable thereafter)) issuable upon the exercise of the Warrant prior to such Fundamental Transaction, such shares of stock, securities, cash, assets or any other property whatsoever (including warrants or other purchase or subscription rights) (collectively, the “**Corporate Event Consideration**”) that the Holder would have been entitled to receive upon the happening of the applicable Fundamental Transaction had the Warrants been exercised immediately prior to the applicable Fundamental Transaction (without regard to any limitations on the exercise of the Warrants). The provision made pursuant to the preceding sentence shall be in a form and substance reasonably satisfactory to the Holder. The provisions of this Section 4.5 shall apply similarly and equally to successive Fundamental Transactions and Corporate Events. Notwithstanding the foregoing, in the event of a Change of Control at the request of the Holder delivered before the 30th day after such Change of Control, the Company (or the Successor Entity) shall purchase this Warrant from the Holder by paying to the Holder, within five (5) Business Days after such request (or, if later, on the effective date of the Change of Control), an amount equal to the Black Scholes Value of the remaining unexercised portion of this Warrant on the effective date of such Change of Control, payable in cash; *provided, however*, that, if the Change of Control is not within the Company’s control, including not approved by the Company’s Board of Directors), the Holder shall only be entitled to receive from the Company or any Successor Entity, as of the date of consummation of such Change of Control, the same type or form of consideration (and in the same proportion), at the Black Scholes Value of the unexercised portion of the Warrants, that is being offered and paid to the holders of Common Stock of the Company in connection with the Change of Control, whether that consideration be in the form of cash, stock or any combination thereof, or whether the holders of Common Stock are given the choice to receive from among alternative forms of consideration in connection with the Change of Control.

4.6 Voluntary Adjustment by the Company. The Company may at any time during the term of the Warrants 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.

4.7 Notices.

4.7.1 Adjustment to Exercise Price. Whenever the Exercise Price is adjusted pursuant to any provision of this Section 4, the Company shall give prompt written notice thereof to the Warrant Agent, which notice shall set forth the Exercise Price after such adjustment and set forth a brief statement of the facts requiring such adjustment. The Company agrees that it will provide the Warrant Agent with any new or amended exercise terms. The Warrant Agent shall have no obligation under any Section of this Warrant Agreement to determine whether an adjustment made hereunder has occurred or are scheduled or contemplated to occur or to calculate any of the adjustments set forth in this Warrant Agreement.

4.7.2 Notices of Certain Events to Allow Exercise. If (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 mailed to each registered holder at its last address as it shall appear upon the Warrant Register of the Company, at least 20 calendar days prior to the applicable record or effective date hereinafter specified, a notice stating (x) the date on which a record is to be taken for the purpose of such dividend, distribution, redemption, rights or warrants, or if a record is not to be taken, the date as of which the holders of the Common Stock of record to be entitled to such dividend, distributions, redemption, rights or warrants are to be determined or (y) the date on which such reclassification, consolidation, merger, sale, transfer or share exchange is expected to become effective or close, and the date as of which it is expected that holders of the Common Stock of record shall be entitled to exchange their shares of the Common Stock for securities, cash or other property deliverable upon such reclassification, consolidation, merger, sale, transfer or share exchange; *provided* that the failure to mail such notice or any defect therein or in the mailing thereof shall not affect the validity of the corporate action required to be specified in such notice. To the extent that any notice provided hereunder 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 registered holder shall remain entitled to exercise a 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.

4.8 Form of Warrant. The respective forms of the Five-Year Warrant and the 15-Month Warrant need not be changed because of any adjustment pursuant to this Section 4, and Warrants issued after such adjustment may state the same Warrant Price and the same number of shares as is stated in the applicable Warrants initially issued pursuant to this Warrant Agreement.

4.9 Calculations. All calculations under this Section 4 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 4, 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.

5. Transfer and Exchange of Warrants.

5.1 Registration of Transfer. The Warrant Agent shall register the transfer, from time to time, of any outstanding Warrant upon the Warrant Register, upon surrender of such Warrant for transfer, duly endorsed with signatures properly guaranteed and accompanied by appropriate instructions for transfer. Upon any such transfer, a new Warrant of the same class representing an equal aggregate number of Warrants shall be issued and the old Warrant shall be cancelled by the Warrant Agent. The Warrants so cancelled shall be delivered by the Warrant Agent to the Company from time to time upon the request and at the expense of the Company.

5.2 Procedure for Surrender of Warrants. Warrants may be surrendered to the Warrant Agent, together with a written request for exchange or transfer, and thereupon the Warrant Agent shall issue in exchange therefor one or more new Warrants of the same class as requested by the registered holder of the Warrants so surrendered, representing an equal aggregate number of Warrants; *provided, however*, that except as otherwise provided herein or in any Book-Entry Warrant Certificate, each Book-Entry Warrant Certificate may be transferred only in whole and only to the Depository, to another nominee of the Depository, to a successor depository, or to a nominee of a successor depository; *provided further, however*, that in the event that a Warrant surrendered for transfer bears a restrictive legend, the Warrant Agent shall not cancel such Warrant and issue new Warrants in exchange therefor until the Warrant Agent has received an opinion of counsel for the Company stating that such transfer may be made and indicating whether the new Warrants or Warrant Shares must also bear a restrictive legend. Upon any such registration of transfer, the Company shall execute, and the Warrant Agent shall countersign and deliver, in the name of the designated transferee a new Warrant Certificate or Warrant Certificates of any authorized denomination evidencing in the aggregate a like number of unexercised Warrants.

A party requesting transfer of Warrants must provide any evidence of authority that may be required by the Warrant Agent, including but not limited to, a signature guarantee from an eligible guarantor institution participating in a signature guarantee program approved by the Securities Transfer Association.

5.3 Fractional Warrants. The Warrant Agent shall not be required to effect any registration of transfer or exchange that will result in the issuance of a warrant certificate for a fraction of a warrant.

5.4 Service Charges. A registered holder shall not incur any service charge for any exchange or registration of transfer of Warrants.

5.5 Warrant Execution and Countersignature. The Warrant Agent is hereby authorized to countersign and to deliver, in accordance with the terms of this Warrant Agreement, the Warrants required to be issued pursuant to the provisions of this Section 5, and the Company, whenever required by the Warrant Agent, will supply the Warrant Agent with Warrants duly executed on behalf of the Company for such purpose.

6. Other Provisions Relating to Rights of Registered Holders of Warrants.

6.1 No Rights as Stockholder. Except as otherwise specifically provided herein, a registered holder, solely in its capacity as a holder of a Warrant, shall not be entitled to vote or receive dividends or be deemed the holder of share capital of the Company for any purpose, nor shall anything contained in this Warrant Agreement be construed to confer upon a registered holder, solely in its capacity as the registered holder of a Warrant, any of the rights of a stockholder of the Company or any right to vote, give or withhold consent to any corporate action (whether any reorganization, issue of stock, reclassification of stock, consolidation, merger, conveyance or otherwise), receive notice of meetings, receive dividends or subscription rights, or otherwise, prior to the issuance to the registered holder of the Warrant Shares that it is then entitled to receive upon the due exercise of a Warrant. In addition, nothing contained in this Warrant Agreement shall be construed as imposing any liabilities on a registered holder to purchase any securities (upon exercise of a Warrant or otherwise) or as a stockholder of the Company, whether such liabilities are asserted by the Company or by creditors of the Company. A Warrant does not entitle the registered holder thereof to any of the rights of a stockholder.

6.2 Lost, Stolen or Destroyed Warrants. The Warrant Agent shall issue replacement Warrants in a form mutually agreed to by Warrant Agent and the Company for those certificates alleged to have been lost, stolen or destroyed, upon receipt by Warrant Agent of an open penalty surety bond satisfactory to it and holding it and Company harmless and, at the Company's or the Rights Agent's request, reimbursement to the Company and the Warrant Agent of all reasonable expenses incidental thereto, absent notice to Warrant Agent that such certificates have been acquired by a bona fide purchaser. Warrant Agent may, at its option, issue replacement Warrants for mutilated certificates upon presentation thereof without such indemnity.

6.3 **Authorized Shares.** The Company covenants that, during the period the Warrants are outstanding, the Company shall at all times keep reserved for issuance under the Warrants a number of shares of Common Stock at least equal to 100% of the maximum number of shares of Common Stock as shall be necessary to satisfy the Company's obligation to issue shares of Common Stock under the Warrants then outstanding (without regard to any limitations on exercise) (the "**Required Reserve Amount**"); *provided* that at no time shall the number of shares of Common Stock reserved pursuant to this Section 6.3 be reduced other than in connection with any exercise of Warrants or such other event covered by Section 4.2. The Required Reserve Amount (including, without limitation, each increase in the number of shares so reserved) shall be allocated pro rata among the holders of the Warrants based on the number of shares of Common Stock issuable upon exercise of Warrants held by each holder thereof on the Issuance Date (without regard to any limitations on exercise) (the "**Authorized Share Allocation**"). In the event that a holder shall sell or otherwise transfer any of such holder's Warrants, each transferee shall be allocated a pro rata portion of such holder's Authorized Share Allocation. Any shares of Common Stock reserved and allocated to any Person that ceases to hold any Warrants shall be allocated to the remaining holders of Warrants, pro rata based on the number of shares of Common Stock issuable upon exercise of the Warrants then held by such holders thereof (without regard to any limitations on exercise). If at any time while the Warrants remains outstanding the Company does not have a sufficient number of authorized and unreserved shares of Common Stock to satisfy its obligation to reserve for issuance the Required Reserve Amount (an "**Authorized Share Failure**"), then the Company shall promptly take all action reasonably necessary to increase the Company's authorized shares of Common Stock to an amount sufficient to allow the Company to reserve the Required Reserve Amount for the Warrants then outstanding. Without limiting the generality of the foregoing sentence, as soon as practicable after the date of the occurrence of an Authorized Share Failure, but in no event later than ninety (90) days after the occurrence of such Authorized Share Failure, the Company shall hold a meeting of its stockholders for the approval of an increase in the number of authorized shares of Common Stock. In connection with such meeting, the Company shall provide each stockholder with a proxy statement and shall use its reasonable best efforts to solicit its stockholders' approval of such increase in authorized shares of Common Stock and to cause its board of directors to recommend to the stockholders that they approve such proposal. Notwithstanding the foregoing, if any such time of an Authorized Share Failure, the Company is able to obtain the written consent of a majority of the shares of its issued and outstanding shares of Common Stock to approve the increase in the number of authorized shares of Common Stock, the Company may satisfy this obligation by obtaining such consent and submitting for filing with the SEC an Information Statement on Schedule 14C.

6.4 **Noncircumvention.** The Company hereby covenants and agrees that the Company will not, by amendment of its Certificate of Incorporation or Bylaws, or through any reorganization, transfer of assets, consolidation, merger, scheme of arrangement, dissolution, issuance or sale of securities, or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of the Warrants, and will at all times in good faith carry out all of the provisions of the Warrants and take all action as may be required to protect the rights of the Holder. Without limiting the generality of the foregoing, the Company (i) shall not increase the par value of any shares of Common Stock receivable upon the exercise of the Warrants above the Exercise Price then in effect, (ii) shall take all such actions as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable shares of Common Stock upon the exercise of the Warrants, and (iii) shall, so long as any of the Warrants are outstanding, take all action necessary to reserve and keep available out of its authorized and unissued shares of Common Stock, solely for the purpose of effecting the exercise of the Warrants, the number of shares of Common Stock as shall from time to time be necessary to effect the exercise of the Warrants then outstanding (without regard to any limitations on exercise).

7. Concerning the Warrant Agent and Other Matters.

7.1 Payment of Taxes. The Company will from time to time promptly pay all taxes and charges that may be imposed upon the Company or the Warrant Agent in respect of the issuance, transfer or delivery of shares of Common Stock upon the exercise of Warrants, but the Company or the Warrant Agent shall not be obligated to pay any transfer taxes or charges in respect of the Warrants or such shares in connection with a transfer to a different holder. The Warrant Agent shall not register any transfer or issue or deliver any Warrant Certificate(s) unless or until the persons requesting the registration or issuance shall have paid to the Warrant Agent for the account of the Company the amount of such transfer tax and charges, if any, or shall have established to the reasonable satisfaction of the Company and the Warrant Agent that such transfer tax and charges, if any, have been paid.

7.2 Resignation, Consolidation, or Merger of Warrant Agent.

7.2.1 Appointment of Successor Warrant Agent. The Warrant Agent, or any successor to it hereafter appointed, may resign its duties and be discharged from all further duties and liabilities hereunder after giving thirty (30) days' notice in writing to the Company pursuant to the notice provisions in Section 8.2 hereof. In the event the transfer agency relationship, if any, in effect between the Company and the Warrant Agent terminates, the Warrant Agent will be deemed to have resigned automatically and be discharged from its duties under this Warrant Agreement as of the effective date of such termination. If the office of the Warrant Agent becomes vacant by resignation or incapacity to act or otherwise, the Company shall appoint in writing a successor Warrant Agent in place of the Warrant Agent. If the Company shall fail to make such appointment within a period of 30 days after it has been notified in writing of such resignation or incapacity by the Warrant Agent or by the holder of the Warrant (who shall, with such notice, submit his Warrant for inspection by the Company), then the holder of any Warrant may apply to the Supreme Court of the State of New York for the County of New York for the appointment of a successor Warrant Agent at the Company's cost. Any successor Warrant Agent, whether appointed by the Company or by such court, shall be authorized under applicable laws to exercise the powers of a transfer agent and subject to supervision or examination by federal or state authorities. After appointment, any successor Warrant Agent shall be vested with all the authority, powers, rights, immunities, duties, and obligations of its predecessor Warrant Agent with like effect as if originally named as Warrant Agent hereunder, without any further act or deed; but if for any reason it becomes necessary or appropriate, the predecessor Warrant Agent shall execute and deliver, at the expense of the Company, an instrument transferring to such successor Warrant Agent all the authority, powers, and rights of such predecessor Warrant Agent hereunder; and upon request of any successor Warrant Agent the Company shall make, execute, acknowledge, and deliver any and all instruments in writing for more fully and effectually vesting in and confirming to such successor Warrant Agent all such authority, powers, rights, immunities, duties, and obligations.

7.2.2 Notice of Successor Warrant Agent. In the event a successor Warrant Agent shall be appointed, the Company shall give notice thereof to the predecessor Warrant Agent and the transfer agent for the Common Stock not later than the effective date of any such appointment.

7.2.3 Merger or Consolidation of Warrant Agent. Any Person into which the Warrant Agent may be merged or converted or with which it may be consolidated or any Person resulting from any merger, conversion, or consolidation to which the Warrant Agent shall be a party, or any Person succeeding to the business of the Warrant Agent, shall be the successor Warrant Agent under this Warrant Agreement without any further act by the parties.

7.3 Fees and Expenses of Warrant Agent.

7.3.1 Remuneration. The Company agrees to pay the Warrant Agent reasonable remuneration for its services as such Warrant Agent hereunder in accordance with a fee schedule to be mutually agreed upon and will reimburse the Warrant Agent upon demand for all expenditures (including the reasonable expenses and fees of counsel) and disbursements that the Warrant Agent may reasonably incur in the incurred in the preparation, delivery, negotiation, amendment, administration and execution of this Warrant Agreement and the exercise and performance of its duties hereunder.

7.3.2 Further Assurances. The Company shall perform, acknowledge and deliver or cause to be performed, acknowledged and delivered all such further and other acts, documents, instruments and assurances as may be reasonably required by the Warrant Agent for the carrying out or performing by the Warrant Agent of the provisions of this Warrant Agreement.

7.4 Liability of Warrant Agent.

7.4.1 Reliance on Company Statement. Whenever in the performance of its duties under this Warrant Agreement, the Warrant Agent shall deem it necessary or desirable that any fact or matter be proved or established by the Company prior to taking or suffering any action hereunder, such fact or matter (unless other evidence in respect thereof be herein specifically prescribed) may be deemed to be conclusively proved and established by a statement signed by the Chief Executive Officer, Chief Financial Officer, President or Chairman of the Board of Directors of the Company and delivered to the Warrant Agent. The Warrant Agent may rely upon, and be held harmless for such reliance, such statement for any action taken or suffered by it pursuant to the provisions of this Warrant Agreement, and shall not be held liable in connection with any delay in receiving such statement.

7.4.2 Indemnification. The Company covenants and agrees to indemnify and to hold the Warrant Agent harmless against any costs, expenses (including reasonable fees of its legal counsel), losses or damages, which may be paid, incurred or suffered by or to which it may become subject, arising from or out of, directly or indirectly, any claims or liability resulting from its actions or omissions as Warrant Agent pursuant hereto; *provided*, that such covenant and agreement does not extend to, and the Warrant Agent shall not be indemnified with respect to, such costs, expenses, losses and damages incurred or suffered by the Warrant Agent as a result of, or arising out of, its gross negligence, bad faith, or willful misconduct (each as determined in a final, non-appealable judgment of a court of competent jurisdiction).

7.4.3 Instructions. From time to time, the Company may provide the Warrant Agent with instructions concerning the services performed by the Warrant Agent hereunder. In addition, at any time the Warrant Agent may apply to any officer of the Company for instruction, and may consult with legal counsel for Warrant Agent or the Company with respect to any matter arising in connection with the services to be performed by the Warrant Agent under this Warrant Agreement. The Warrant Agent and its agents and subcontractors shall not be liable and shall be indemnified by the Company for any action taken or omitted by the Warrant Agent in reliance upon any Company instructions or upon the advice or opinion of such counsel. The Warrant Agent shall not be held to have notice of any change of authority of any person, until receipt of written notice thereof from the Company.

7.4.4 Exclusions. The Warrant Agent shall have no responsibility with respect to the validity of this Warrant Agreement or with respect to the validity or execution of any Warrant (except its countersignature thereof); nor shall it be responsible for any breach by the Company of any covenant or condition contained in this Warrant Agreement or in any Warrant; nor shall it be responsible to make calculations under Section 3.3.8 or any adjustments required under the provisions of Section 4 hereof or responsible for the manner, method, or amount of any such adjustment or the ascertaining of the existence of facts that would require any such adjustment; nor shall it by any act hereunder be deemed to make any representation or warranty as to the authorization or reservation of any shares of Common Stock to be issued pursuant to this Warrant Agreement or any Warrant or as to whether any shares of Common Stock will when issued be valid and fully paid and nonassessable.

7.4.5 Rights and Duties of Warrant Agent. (a) The Warrant Agent may consult with legal counsel (who may be legal counsel for the Company), and the opinion or advice of such counsel shall be full and complete authorization and protection to the Warrant Agent as to any action taken or omitted by it in accordance with such opinion or advice.

(b) The Warrant Agent shall not be liable for or by reason of any of the statements of fact or recitals contained in this Warrant Agreement or in the Warrant Certificates (except its countersignature thereof) or be required to verify the same, and all such statements and recitals are and shall be deemed to have been made by the Company only.

(c) The Warrant Agent shall not have any duty or responsibility in the case of the receipt of any written demand from any holder of Warrants with respect to any action or default by the Company, including, without limiting the generality of the foregoing, any duty or responsibility to initiate or attempt to initiate any proceedings at law or otherwise or to make any demand upon the Company.

(d) The Warrant Agent and any stockholder, director, officer or employee of the Warrant Agent may buy, sell or deal in any of the Warrants or other securities of the Company or become pecuniarily interested in any transaction in which the Company may be interested, or contract with or lend money to the Company or otherwise act as fully and freely as though it were not Warrant Agent under this Warrant Agreement. Nothing herein shall preclude the Warrant Agent from acting in any other capacity for the Company or for any other legal entity.

(e) The Warrant Agent may execute and exercise any of the rights or powers hereby vested in it or perform any duty hereunder either itself or by or through its attorney or agents, and the Warrant Agent shall not be answerable or accountable for any act, default, neglect or misconduct of any such attorney or agents or for any loss to the Company resulting from any such act, default, neglect or misconduct, absent gross negligence, bad faith or willful misconduct (each as determined by a final judgment of a court of competent jurisdiction) in the selection and continued employment thereof.

(f) The Warrant Agent may rely on and shall be held harmless and protected and shall incur no liability for or in respect of any action taken, suffered or omitted to be taken by it in reliance upon any certificate, statement, instrument, opinion, notice, letter, facsimile transmission, telegram or other document, or any security delivered to it, and believed by it to be genuine and to have been made or signed by the proper party or parties, or upon any written or oral instructions or statements from the Company with respect to any matter relating to its acting as Warrant Agent hereunder.

(g) The Warrant Agent shall not be obligated to expend or risk its own funds or to take any action that it believes would expose or subject it to expense or liability or to a risk of incurring expense or liability, unless it has been furnished with assurances of repayment or indemnity satisfactory to it.

(h) The Warrant Agent shall not be liable or responsible for any failure of the Company to comply with any of its obligations relating to any registration statement filed with the Commission or this Warrant Agreement, including without limitation obligations under applicable regulation or law.

(i) The Warrant Agent shall not be accountable or under any duty or responsibility for the use by the Company of any Warrants authenticated by the Warrant Agent and delivered by it to the Company pursuant to this Warrant Agreement or for the application by the Company of the proceeds of the issue and sale, or exercise, of the Warrants.

(j) The Warrant Agent shall act hereunder solely as agent for the Company, and its duties shall be determined solely by the express provisions hereof (and no duties or obligations shall be inferred or implied). The Warrant Agent shall not assume any obligations or relationship of agency or trust with any of the owners or holders of the Warrants.

(k) The Warrant Agent may rely on and be fully authorized and protected in acting or failing to act upon (a) any guaranty of signature by an "eligible guarantor institution" that is a member or participant in the Securities Transfer Agents Medallion Program or other comparable "signature guarantee program" or insurance program in addition to, or in substitution for, the foregoing; or (b) any law, act, regulation or any interpretation of the same even though such law, act, or regulation may thereafter have been altered, changed, amended or repealed.

(l) In the event the Warrant Agent believes any ambiguity or uncertainty exists hereunder or in any notice, instruction, direction, request or other communication, paper or document received by the Warrant Agent hereunder, the Warrant Agent, may, in its sole discretion, refrain from taking any action, and shall be fully protected and shall not be liable in any way to Company, the holder of any Warrant Certificate or Book-Entry Warrant Certificate or any other person or entity for refraining from taking such action, unless the Warrant Agent receives written instructions signed by the Company that eliminates such ambiguity or uncertainty to the satisfaction of Warrant Agent. The foregoing shall not eliminate any liability that the Company may have to any registered holder or holder of any Warrant Certificate or Book-Entry Warrant Certificate.

7.5 Limitation on Liability of Warrant Agent. Notwithstanding anything contained herein to the contrary, the Warrant Agent's aggregate liability during any term of this Warrant Agreement with respect to, arising from, or arising in connection with this Warrant Agreement, or from all services provided or omitted to be provided under this Warrant Agreement, whether in contract, or in tort, or otherwise, is limited to, and shall not exceed, the amounts paid hereunder by the Company to Warrant Agent as fees and charges, but not including reimbursable expenses, during the twelve (12) months immediately preceding the event for which recovery from Warrant Agent is being sought. Sections 7.1, 7.3, 7.4, 7.5 and 8.15 shall survive the expiration of the Warrants, the termination of this Warrant Agreement and the resignation, replacement or removal of the Warrant Agent. The costs and expenses incurred in enforcing this right of indemnification shall be paid by the Company.

7.6 Acceptance of Agency. The Warrant Agent hereby accepts the agency established by this Warrant Agreement and agrees to perform the same upon the terms and conditions herein set forth and among other things, shall account promptly to the Company with respect to Warrants exercised and concurrently account for, and pay to the Company, all moneys received by the Warrant Agent for the purchase of shares of Common Stock through the exercise of Warrants.

7.7 Opinion of Counsel. The Company shall provide an opinion of counsel prior to the Issuance Date to set up a reserve of Warrants and related Common Stock. The opinion shall state that all Warrants or Common Stock, as applicable, are:

- (1) registered under the 1933 Act, or are exempt from such registration, and all appropriate state securities law filings have been made with respect to the warrants or shares; and
- (2) validly issued, fully paid and non-assessable.

8. Miscellaneous Provisions.

8.1 Successors. Subject to applicable securities laws, this Warrant Agreement and the Warrants 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 each registered holder. The provisions of this Warrant Agreement are intended to be for the benefit of any holder from time to time of this Warrant Agreement and shall be enforceable by the holder or holder of Warrant Shares.

8.2 Notices. Any notice, statement or demand authorized by this Warrant Agreement to be given or made by the Warrant Agent or by the holder of any Warrant to or on the Company shall be in writing and delivered by hand or sent by registered or certified mail or overnight courier service addressed (until another address is filed in writing by the Company with the Warrant Agent), or by facsimile transmission (as long as the sender maintains a fax delivery report confirming receipt by the recipient and is considered delivered when sent or if after normal business hours the next Business Day) or by email (as long as no bounce back is received by the sender), as follows:

Outlook Therapeutics, Inc.
7 Clarke Drive
Cranbury, NJ 08512
Attn: Lawrence A. Kenyon

Any notice, statement or demand authorized by this Warrant Agreement to be given or made by the holder of any Warrant or by the Company to or on the Warrant Agent shall be in writing and delivered by hand or overnight courier service addressed (until another address is filed in writing by the Warrant Agent with the Company) as follows:

American Stock Transfer & Trust Company, LLC
6201 15th Avenue
Brooklyn, NY 11219
Attn: Reorg Department

8.3 Jurisdiction. The validity, interpretation, and performance of this Warrant Agreement and of the Warrants shall be governed in all respects by the laws of the State of New York, without giving effect to conflicts of law principles that would result in the application of the substantive laws of another jurisdiction. The Company hereby agrees that any action, proceeding or claim against it arising out of or relating in any way to this Warrant Agreement shall be brought and enforced in the courts of the State of New York or the United States District Court for the Southern District of New York, and irrevocably submits to such jurisdiction, which jurisdiction shall be exclusive. The Company hereby waives any objection to such exclusive jurisdiction and that such courts represent an inconvenience forum. Any such process or summons to be served upon the Company may be served by transmitting a copy thereof by registered or certified mail, return receipt requested, postage prepaid, addressed to it at the address set forth in Section 8.2 hereof. Such mailing shall be deemed personal service and shall be legal and binding upon the Company in any action, proceeding or claim.

8.4 Persons Having Rights under this Warrant Agreement. Nothing in this Warrant Agreement expressed and nothing that may be implied from any of the provisions hereof is intended, or shall be construed, to confer upon, or give to, any person or corporation other than the parties hereto and the registered holders of the Warrants, any right, remedy, or claim under or by reason of this Warrant Agreement or of any covenant, condition, stipulation, promise, or agreement hereof. All covenants, conditions, stipulations, promises, and agreements contained in this Warrant Agreement shall be for the sole and exclusive benefit of the parties hereto and their successors and assigns and of the registered holders of the Warrants.

8.5 Examination of the Warrant Agreement. A copy of this Warrant Agreement shall be available at all reasonable times at the office of the Warrant Agent, for inspection by the registered holder of any Warrant. The Warrant Agent may require any such holder to submit his Warrant for inspection by it.

8.6 Counterparts. This Warrant Agreement may be executed in any number of original or facsimile counterparts and each of such counterparts shall for all purposes be deemed to be an original, and all such counterparts shall together constitute but one and the same instrument. A signature to this Warrant Agreement transmitted electronically shall have the same authority, effect, and enforceability as an original signature.

8.7 Effect of Headings. The Section headings herein are for convenience only and are not part of this Warrant Agreement and shall not affect the interpretation thereof.

8.8 Amendments. All modifications or amendments, including any amendment to increase the Warrant Price or shorten the applicable Exercise Period, shall require the written consent of the registered holders of Warrants equal to at least 67% of the Warrant Shares issuable upon exercise of all then outstanding Warrants; *provided, however*, that any modification or amendment that applies only to the Five-Year Warrants or the 15-Month Warrants, as the case may be, shall require only the written consent of the registered holders of the applicable Warrants equal to at least 67% of the Warrant Shares issuable upon exercise of all then outstanding Warrants of the applicable class. As a condition precedent to the Warrant Agent's execution of any amendment, the Company shall deliver to the Warrant Agent a certificate from an Authorized Officer that states that the proposed amendment is in compliance with the terms of this Section 8.8. No consideration shall be offered or paid to any person to amend or consent to a waiver or modification of any provision of this Warrant Agreement unless the same consideration is also offered to all holders of the Warrants or, in the case of an amendment, waiver or modification that applies only to the Five-Year Warrants or the 15-Month Warrants, as the case may be, all holders of such Warrants. Notwithstanding anything in this Warrant Agreement to the contrary, the Warrant Agent shall not be required to execute any supplement or amendment to this Warrant Agreement that it has determined would adversely affect its own rights, duties, obligations or immunities under this Warrant Agreement. No supplement or amendment to this Warrant Agreement shall be effective unless duly executed by the Warrant Agent.

8.9 Severability. Wherever possible, each provision of this Warrant Agreement shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Warrant Agreement 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 Agreement; *provided, however*, that if such prohibited and invalid provision shall adversely affect the rights, immunities, liabilities, duties or obligations of the Warrant Agent, the Warrant Agent shall be entitled to resign immediately upon written notice to the Company.

8.10 Restrictions. Each registered holder acknowledges that the Warrant Shares acquired upon the exercise of a Warrant, if not registered, and the registered holder does not utilize cashless exercise, will have restrictions upon resale imposed by state and federal securities laws.

8.11 Nonwaiver and Expenses. No course of dealing or any delay or failure to exercise any right hereunder on the part of a registered holder shall operate as a waiver of such right or otherwise prejudice such a registered holder's rights, powers or remedies. Without limiting any other provision of this Warrant Agreement or the Underwriting Agreement, if the Company willfully and knowingly fails to comply with any provision of this Warrant Agreement or the Warrants, which results in any material damages to a registered holder, the Company shall pay such registered 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 registered holder in collecting any amounts due pursuant hereto or in otherwise enforcing any of its rights, powers or remedies hereunder.

8.12 Limitation of Liability. No provision hereof, in the absence of any affirmative action by the registered holder to exercise a Warrant to purchase Warrant Shares, and no enumeration herein of the rights or privileges of a registered holder, shall give rise to any liability of each registered 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.

8.13 Remedies. The registered holders, 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 Agreement. 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 Agreement 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.

8.14 Confidentiality. The Warrant Agent and the Company agree that all books, records, information and data pertaining to the business of the other party, including inter alia, personal, non-public warrant holder information, which are exchanged or received pursuant to the negotiation or the carrying out of this Warrant Agreement including the fees for services set forth in a mutually agreed upon schedule shall remain confidential, and shall not be voluntarily disclosed to any other person, except as may be required by law, including, without limitation, pursuant to subpoenas from state or federal government authorities (e.g., in divorce and criminal actions).

8.15 Consequential Damages. Neither party to this Warrant Agreement shall be liable to the other party for any consequential, indirect, special or incidental damages under any provisions of this Warrant Agreement or for any consequential, indirect, punitive, special or incidental damages arising out of any act or failure to act hereunder even if that party has been advised of or has foreseen the possibility of such damages.

8.16 Force Majeure. Notwithstanding anything to the contrary contained herein, the Warrant Agent will not be liable for any delays or failures in performance resulting from acts beyond its reasonable control including, without limitation, acts of God, terrorist acts, shortage of supply, breakdowns or malfunctions, interruptions or malfunction of computer facilities, or loss of data due to power failures or mechanical difficulties with information storage or retrieval systems, labor difficulties, war, or civil unrest.

9. Certain Definitions. For purposes of this Warrant Agreement, the following terms shall have the following meanings:

9.1 “Affiliate” means, with respect to any Person, any other Person that directly or indirectly controls, is controlled by, or is under common control with, such Person, it being understood for purposes of this definition that “control” of a Person means the power directly or indirectly either to vote 10% or more of the stock having ordinary voting power for the election of directors of such Person or direct or cause the direction of the management and policies of such Person whether by contract or otherwise.

9.2 “Approved Stock Plan” means any employee benefit plan that has been approved by a majority of the disinterested members of the Board of Directors of the Company, pursuant to which the Company’s securities may be issued to any employee, officer or director for services provided to the Company.

9.3 “Attribution Parties” means, collectively, the following Persons and entities: (i) any investment vehicle, including, any funds, feeder funds or managed accounts, currently, or from time to time after the Issuance Date, directly or indirectly managed or advised by the Holder's investment manager or any of its Affiliates or principals, (ii) any direct or indirect Affiliates of the Holder or any of the foregoing, (iii) any Person acting or who could be deemed to be acting as a Group together with the Holder or any of the foregoing and (iv) any other Persons whose beneficial ownership of the Company's Common Stock would or could be aggregated with the Holder's and the other Attribution Parties for purposes of Section 13(d) of the 1934 Act. For clarity, the purpose of the foregoing is to subject collectively the Holder and all other Attribution Parties to the Maximum Percentage.

9.4 “Bid Price” means, for any security as of the particular time of determination, the bid price for such security on the Principal Market as reported by Bloomberg as of such time of determination, or, if the Principal Market is not the principal securities exchange or trading market for such security, the bid price of such security on the principal securities exchange or trading market where such security is listed or traded as reported by Bloomberg as of such time of determination, or if the foregoing does not apply, the bid price of such security in the over-the-counter market on the electronic bulletin board for such security as reported by Bloomberg as of such time of determination, or, if no bid price is reported for such security by Bloomberg as of such time of determination, the average of the bid prices of any market makers for such security as reported in the “pink sheets” by OTC Markets Group Inc. (formerly Pink Sheets LLC) as of such time of determination. If the Bid Price cannot be calculated for a security as of the particular time of determination on any of the foregoing bases, the Bid Price of such security as of such time of determination shall be the fair market value as mutually determined by the Company and the Holder. If the Company and the Holder are unable to agree upon the fair market value of such security, then such dispute shall be resolved in accordance with the procedures in Section 11. All such determinations shall be appropriately adjusted for any stock dividend, stock split, stock combination or other similar transaction during such period.

9.5 “Black Scholes Value” means the value of the Warrants based on the Black-Scholes Option Pricing Model obtained from the “OV” function on Bloomberg determined as of the day immediately following the first public announcement of the applicable Change of Control, or, if the Change of Control is not publicly announced, the date the Change of Control is consummated, for pricing purposes and reflecting (i) a risk-free interest rate corresponding to the U.S. Treasury rate for a period equal to the remaining term of the Warrants as of such date of request, (ii) an expected volatility equal to 100%, (iii) the underlying price per share used in such calculation shall be the greater of (a) the highest Weighted Average Price during the five (5) Trading Days prior to the closing of the Change of Control and (b) 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 Change of Control, (iv) a zero cost of borrow and (v) a 360 day annualization factor.

9.6 “Bloomberg” means Bloomberg Financial Markets.

9.7 “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 or executive order to remain closed.

9.8 “Change of Control” means any Fundamental Transaction other than (i) any reorganization, recapitalization or reclassification of the Common Stock in which holders of the Company’s voting power immediately prior to such reorganization, recapitalization or reclassification continue after such reorganization, recapitalization or reclassification to hold publicly traded securities and, directly or indirectly, are, in all material respect, the holders of the voting power of the surviving entity (or entities with the authority or voting power to elect the members of the board of directors (or their equivalent if other than a corporation) of such entity or entities) after such reorganization, recapitalization or reclassification, (ii) pursuant to a migratory merger effected solely for the purpose of changing the jurisdiction of incorporation of the Company or (iii) a merger in connection with a bona fide acquisition by the Company of any Person in which (x) the gross consideration paid, directly or indirectly, by the Company in such acquisition is not greater than 40% of the Company’s market capitalization as calculated on the date of the consummation of such merger and (y) such merger does not contemplate a change to the identity of a majority of the board of directors of the Company. Notwithstanding anything herein to the contrary, any transaction or series of transaction that, directly or indirectly, results in the Company or the Successor Entity not having Common Stock or common stock, as applicable, registered under the 1934 Act and listed on an Eligible Market shall be deemed a Change of Control.

9.9 “Closing Bid Price” and “Closing Sale Price” means, for any security as of any date, the last closing bid price and last closing trade price, respectively, for such security on the Principal Market, as reported by Bloomberg, or, if the Principal Market begins to operate on an extended hours basis and does not designate the closing bid price or the closing trade price, as the case may be, then the last bid price or the last trade price, respectively, of such security prior to 4:00:00 p.m., New York time, as reported by Bloomberg, or, if the Principal Market is not the principal securities exchange or trading market for such security, the last closing bid price or last trade price, respectively, of such security on the principal securities exchange or trading market where such security is listed or traded as reported by Bloomberg, or if the foregoing do not apply, the last closing bid price or last trade price, respectively, of such security in the over-the-counter market on the electronic bulletin board for such security as reported by Bloomberg, or, if no closing bid price or last trade price, respectively, is reported for such security by Bloomberg, the average of the bid prices, or the ask prices, respectively, of any market makers for such security as reported in the OTC Link or “pink sheets” by OTC Markets Group Inc. (formerly Pink OTC Markets Inc.). If the Closing Bid Price or the Closing Sale Price cannot be calculated for a security on a particular date on any of the foregoing bases, the Closing Bid Price or the Closing Sale Price, as the case may be, of such security on such date shall be the fair market value as mutually determined by the Company and the Holder. If the Company and the Holder are unable to agree upon the fair market value of such security, then such dispute shall be resolved pursuant to Section 11. All such determinations to be appropriately adjusted for any stock dividend, stock split, stock combination, reclassification or other similar transaction during the applicable calculation period.

9.10 “Common Stock” means (i) the Company’s shares of Common Stock and (ii) any share capital into which such Common Stock shall have been changed or any share capital resulting from a reclassification of such Common Stock.

9.11 “Control” (including the terms “controlling”, “controlled by” or “under common control with”) means the possession, direct or indirect, of the power to direct or cause the direction of the management and policies of a Person, whether through the ownership of voting securities, by contract or otherwise.

9.12 “Convertible Securities” means any stock or securities (other than Options) directly or indirectly convertible into or exercisable or exchangeable for shares of Common Stock.

9.13 “Eligible Market” means The NASDAQ Capital Market, the NYSE American LLC, The NASDAQ Global Select Market, The NASDAQ Global Market or The New York Stock Exchange, Inc.

9.14 “Excluded Securities” means any shares of Common Stock issued or issuable, or deemed issued or issuable pursuant to Section 4.1: (i) in connection with any Approved Stock Plan, including, for the avoidance of doubt, the issuance of equity awards (including Options or Convertible Securities) pursuant to any such Approved Stock Plan after the Subscription Date, (ii) upon exercise of the Warrants, (iii) upon conversion, exercise, exchange or settlement of any Options or Convertible Securities that are outstanding on the day immediately preceding the Subscription Date, (iv) upon the issuance of “payment-in-kind” dividends of additional shares of the Company’s Series A-1 Convertible Preferred Stock, as contemplated by the terms thereof, and (v) pursuant to acquisitions, divestitures, licenses, partnerships, collaborations or strategic transactions approved by the Board of Directors or a majority of the members of a committee of directors established for such purposes; *provided* that any such issuance shall only be to a Person (or to the equity holders of a Person) that is, itself or through its subsidiaries, an operating company or 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.

9.15 “Expiration Date” means the date that is sixty (60) months after the Issuance Date in the case of the Five-Year Warrants and on the date that is fifteen (15) months after the Issuance Date in the case of the 15-Month Warrants or, if any such date falls on a day other than a Business Day or on which trading does not take place on the Principal Market (a “Holiday”), the next date that is not a Holiday, as the same may be extended pursuant to Section 3.3.7.

9.16 “Fundamental Transaction” means (A) that the Company shall, directly or indirectly, including through subsidiaries, Affiliates or otherwise, in one or more related transactions, (i) consolidate or merge with or into (whether or not the Company is the surviving corporation) another Subject Entity, or (ii) sell, assign, transfer, convey or otherwise dispose of all or substantially all of the properties or assets of the Company or any of its “significant subsidiaries” (as defined in Rule 1-02 of Regulation S-X) to one or more Subject Entities, or (iii) make, or allow one or more Subject Entities to make, or allow the Company to be subject to or have its shares of Common Stock be subject to or party to one or more Subject Entities making, a purchase, tender or exchange offer that is accepted by the holders of at least either (x) 50% of the outstanding shares of Common Stock, (y) 50% of the outstanding shares of Common Stock calculated as if any shares of Common Stock held by all Subject Entities making or party to, or Affiliated with any Subject Entities making or party to, such purchase, tender or exchange offer were not outstanding; or (z) such number of shares of Common Stock such that all Subject Entities making or party to, or Affiliated with any Subject Entity making or party to, such purchase, tender or exchange offer, become collectively the beneficial owners (as defined in Rule 13d-3 under the 1934 Act) of at least 50% of the outstanding shares of Common Stock, or (iv) consummate a stock purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with one or more Subject Entities whereby all such Subject Entities, individually or in the aggregate, acquire, either (x) at least 50% of the outstanding shares of Common Stock, (y) at least 50% of the outstanding shares of Common Stock calculated as if any shares of Common Stock held by all the Subject Entities making or party to, or Affiliated with any Subject Entity making or party to, such stock purchase agreement or other business combination were not outstanding; or (z) such number of shares of Common Stock such that the Subject Entities become collectively the beneficial owners (as defined in Rule 13d-3 under the 1934 Act) of at least 50% of the outstanding shares of Common Stock, or (v) reorganize, recapitalize or reclassify its shares of Common Stock, (B) that the Company shall, directly or indirectly, including through subsidiaries, Affiliates or otherwise, in one or more related transactions, allow any Subject Entity individually or the Subject Entities in the aggregate to be or become the “beneficial owner” (as defined in Rule 13d-3 under the 1934 Act), directly or indirectly, whether through acquisition, purchase, assignment, conveyance, tender, tender offer, exchange, reduction in outstanding shares of Common Stock, merger, consolidation, business combination, reorganization, recapitalization, spin-off, scheme of arrangement, reorganization, recapitalization or reclassification or otherwise in any manner whatsoever, of either (x) at least 50% of the aggregate ordinary voting power represented by issued and outstanding shares of Common Stock, (y) at least 50% of the aggregate ordinary voting power represented by issued and outstanding shares of Common Stock not held by all such Subject Entities as of the Issuance Date calculated as if any shares of Common Stock held by all such Subject Entities were not outstanding, or (z) a percentage of the aggregate ordinary voting power represented by issued and outstanding shares of Common Stock or other equity securities of the Company sufficient to allow such Subject Entities to effect a statutory short form merger or other transaction requiring other stockholders of the Company to surrender their Common Stock without approval of the stockholders of the Company or (C) directly or indirectly, including through subsidiaries, Affiliates or otherwise, in one or more related transactions, the issuance of or the entering into any other instrument or transaction structured in a manner to circumvent, or that circumvents, the intent of this definition in which case this definition shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this definition to the extent necessary to correct this definition or any portion of this definition that may be defective or inconsistent with the intended treatment of such instrument or transaction.

9.17 “Group” means a “group” as that term is used in Section 13(d) of the 1934 Act and as defined in Rule 13d-5 thereunder.

9.18 “Merger Event” means any of the following: (i) a sale, lease or other transfer of all or substantially all assets of the Company, (ii) any merger or consolidation involving the Company in which the Company is not the surviving entity or in which the outstanding shares of the Company’s capital stock are otherwise converted into or exchanged for shares of capital stock or other securities or property of another entity, or (iii) any sale by holders of the outstanding voting equity securities of the Company in a single transaction or series of related transactions of shares constituting a majority of the outstanding combined voting power of the Company.

9.19 “Option Value” means the value of an Option based on the Black-Scholes Option Pricing model obtained from the “OV” function on Bloomberg determined as of the day of the most recent Closing Sale Price of the Common Stock prior to the public announcement of the pricing of the applicable Option (or, if the pricing is not publicly announced, on the most recent Closing Sale Price of the Common Stock prior to the pricing of the applicable Option) and reflecting (i) a risk-free interest rate corresponding to the U.S. Treasury rate for a period equal to the remaining term of the applicable Option as of the applicable date of determination, (ii) an expected volatility equal to 50%, (iii) an underlying price per share equal to the most recent Closing Sale Price of the Common Stock prior to the public announcement of the pricing of the applicable Option (or, if the pricing is not publicly announced, on the most recent Closing Sale Price of the Common Stock prior to the pricing of the applicable Option), (iv) a zero cost of borrow and (v) a 360-day annualization factor.

9.20 “Options” means any rights, warrants or options to subscribe for or purchase shares of Common Stock or Convertible Securities.

9.21 “Parent Entity” of a Person means an entity that, directly or indirectly, controls the applicable Person, including such entity whose common stock or equivalent equity security is quoted or listed on an Eligible Market (or, if so elected by the Holder, any other market, exchange or quotation system), or, if there is more than one such Person or such entity, the Person or such entity designated by the Holder or in the absence of such designation, such Person or entity with the largest public market capitalization as of the date of consummation of the Fundamental Transaction or Change of Control.

- 9.22 “Person” means an individual, a limited liability company, a partnership, a joint venture, a corporation, a trust, an unincorporated organization, any other entity and a government or any department or agency thereof.
- 9.23 “Principal Market” means the principal securities exchange or securities market on which the Common Stock is then traded.
- 9.24 “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.
- 9.25 “Subject Entity” means any Person, Persons or Group or any Affiliate or associate of any such Person, Persons or Group.
- 9.26 “Successor Entity” means one or more Person or Persons (or, if so elected by the Holder, the Company or Parent Entity) formed by, resulting from or surviving any Fundamental Transaction or Change of Control or one or more Person or Persons (or, if so elected by the Holder, the Company or the Parent Entity) with which such Fundamental Transaction or Change of Control shall have been entered into.
- 9.27 “Trading Day” means any day on which the Common Stock is traded on the Principal Market, or, if the Principal Market is not the principal trading market for the Common Stock, then on the principal securities exchange or securities market on which the Common Stock is then traded.
- 9.28 “Transaction Documents” means any agreement entered into by and between the Company and the Holder, as applicable.
- 9.29 “Weighted Average Price” means, for any security as of any date, the dollar volume-weighted average price for such security on the Principal Market during the period beginning at 9:30:01 a.m., New York time (or such other time as the Principal Market publicly announces is the official open of trading), and ending at 4:00:00 p.m., New York time (or such other time as the Principal Market publicly announces is the official close of trading), as reported by Bloomberg through its “Volume at Price” function or, if the foregoing does not apply, the dollar volume-weighted average price of such security in the over-the-counter market on the electronic bulletin board for such security during the period beginning at 9:30:01 a.m., New York time (or such other time as such market publicly announces is the official open of trading), and ending at 4:00:00 p.m., New York time (or such other time as such market publicly announces is the official close of trading), as reported by Bloomberg, or, if no dollar volume-weighted average price is reported for such security by Bloomberg for such hours, the average of the highest Closing Bid Price and the lowest closing ask price of any of the market makers for such security as reported in the OTC Link or “pink sheets” by OTC Markets Group Inc. (formerly Pink OTC Markets Inc.). If the Weighted Average Price cannot be calculated for a security on a particular date on any of the foregoing bases, the Weighted Average Price of such security on such date shall be the fair market value as mutually determined by the Company and the Holder. If the Company and the Holder are unable to agree upon the fair market value of such security, then such dispute shall be resolved pursuant to Section 11 with the term “Weighted Average Price” being substituted for the term “Exercise Price.” All such determinations shall be appropriately adjusted for any stock dividend, stock split, stock combination, reclassification or other similar transaction during the applicable calculation period.

[Remainder of page intentionally left blank. Signature page follows.]

IN WITNESS WHEREOF, this Warrant Agreement has been duly executed by the parties hereto as of the day and year first above written.

OUTLOOK THERAPEUTICS, INC.

By: _____
Name: _____
Title:

AMERICAN STOCK TRANSFER & TRUST COMPANY, LLC

By: _____
Name: _____
Title:

[Signature Page to Warrant Agreement]

EXHIBIT A

[FORM OF FIVE-YEAR WARRANT GLOBAL CERTIFICATE]

OUTLOOK THERAPEUTICS, INC.

FIVE-YEAR WARRANT CERTIFICATE

THIS CERTIFIES THAT, for value received is the registered holder of a Warrant or Warrants (the "**Warrant** ") expiring the date sixty (60) months after the Initial Exercisability Date or, if such date falls on a day other than a Business Day or on which trading does not take place on the Principal Market (a "**Holiday**"), the next day that is not a Holiday, subject to extension in certain events ("**Expiration Date**"), to purchase _____ fully paid and non-assessable shares ("**Shares**") of Common Stock, par value \$0.01 per share ("**Common Stock**"), of Outlook Therapeutics, Inc., a Delaware corporation (the "**Company**"). The Warrant entitles the holder thereof to purchase from the Company such number of shares of Common Stock at the price of \$[●] per share (subject to adjustment), upon surrender of this Warrant Certificate and payment of the Warrant Price to American Stock Transfer & Trust Company, LLC (the "**Warrant Agent**"), at its offices designated for such purpose, but only subject to the conditions set forth herein and in the Warrant Agreement between the Company and the Warrant Agent (as may be amended from time to time, the "**Warrant Agreement**"). The Warrant Agreement provides that upon the occurrence of certain events, the Warrant Price and the number of Shares purchasable hereunder, set forth on the face hereof, may, subject to certain conditions, be adjusted. The term "**Warrant Price**" as used in this Warrant Certificate refers to the price per share of Common Stock at which Shares may be purchased at the time the Warrant is exercised. Capitalized terms used and not defined herein shall have the meanings set forth in the Warrant Agreement.

No fraction of a Share will be issued upon any exercise of a Warrant. If the holder of a Warrant would be entitled to receive a fraction of a Share upon any exercise of a Warrant, the Company shall pay a cash adjustment in respect of such fraction in an amount equal to such fraction multiplied by the Exercise Price.

Upon any exercise of the Warrant for less than the total number of full Shares provided for herein, there shall be issued to the registered holder hereof or the registered holder's assignee a new Warrant Certificate covering the number of Shares for which the Warrant has not been exercised, *provided* that such holder has previously surrendered this Warrant to the Warrant Agent.

Upon surrender of the Warrant Certificate for transfer, properly endorsed with signatures properly guaranteed and accompanied by appropriate instructions for transfer, the Warrant Agent shall register the transfer. A new Warrant Certificate or Warrant Certificates evidencing in the aggregate a like number of Warrants shall be issued and the old Warrant Certificate shall be canceled.

Warrant Certificates, when surrendered to the Warrant Agent, may be transferred or exchanged in the manner and subject to the limitations provided in the Warrant Agreement, but without payment of any service charge, for another Warrant Certificate or Warrant Certificates evidencing in the aggregate a like number of Warrants.

The Company and the Warrant Agent may deem and treat the registered holder as the absolute owner of this Warrant Certificate (notwithstanding any notation of ownership or other writing hereon made by anyone), for the purpose of any exercise hereof, and for all other purposes, and neither the Company nor the Warrant Agent shall be affected by any notice to the contrary.

This Warrant Certificate does not entitle the registered holder to any of the rights of a stockholder of the Company.

OUTLOOK THERAPEUTICS, INC.

By: _____
Name: _____
Title:

COUNTERSIGNED:

AMERICAN STOCK TRANSFER & TRUST COMPANY, LLC
as Warrant Agent

By: _____
Authorized Officer

[Signature page to Warrant Certificate]

ELECTION TO PURCHASE FORM

(to be executed by the registered holder in order to exercise Warrants)

The undersigned registered holder irrevocably elects to exercise Warrants to _____ purchase _____ shares of Common Stock represented by this Warrant Certificate and to purchase such shares of Common Stock issuable upon the exercise of such Warrants, and requests that such shares shall be issued in the name of

(PLEASE TYPE OR PRINT NAME AND ADDRESS)

(SOCIAL SECURITY OR TAX IDENTIFICATION NUMBER)
and be delivered to:

(PLEASE PRINT OR TYPE NAME AND ADDRESS)

and, at the sole election of the registered holder, if such number of Warrants shall not be all the Warrants evidenced by this Warrant Certificate, that a new Warrant Certificate for the balance of such Warrants be registered in the name of, and delivered to, the registered holder at the address stated below:

Dated: _____

(SIGNATURE)

(ADDRESS)

(TAX IDENTIFICATION NUMBER)

ASSIGNMENT

(to be executed by the registered holder in order to assign Warrants)

For Value Received, hereby sells, assigns, and transfers unto

(PLEASE TYPE OR PRINT NAME AND ADDRESS)

(SOCIAL SECURITY OR TAX IDENTIFICATION NUMBER)

and be delivered to:

(PLEASE PRINT OR TYPE NAME AND ADDRESS)

Warrants to purchase _____ shares of Common Stock represented by this Warrant Certificate, and hereby irrevocably constitutes and appoints
Attorney to transfer this Warrant Certificate on the books of the Company, with full power of substitution in the premises.

Dated: _____

(SIGNATURE)

The signature to the assignment of the Subscription Form must correspond to the name written upon the face of this Warrant Certificate in every particular, without alteration or enlargement or any change whatsoever, and must be guaranteed by a commercial bank or trust company or a member firm of the American Stock Exchange, New York Stock Exchange, Pacific Stock Exchange or Chicago Stock Exchange.

[Signature page to Warrant Certificate]

EXHIBIT B

[FORM OF 15-MONTH WARRANT GLOBAL CERTIFICATE]

OUTLOOK THERAPEUTICS, INC.

15-MONTH WARRANT CERTIFICATE

THIS CERTIFIES THAT, for value received is the registered holder of a Warrant or Warrants (the “**Warrant**”) expiring the date fifteen (15) months after the Initial Exercisability Date or, if such date falls on a day other than a Business Day or on which trading does not take place on the Principal Market (a “**Holiday**”), the next day that is not a Holiday, subject to extension in certain events (“**Expiration Date**”), to purchase _____ fully paid and non-assessable shares (“**Shares**”) of Common Stock, par value \$0.01 per share (“**Common Stock**”), of Outlook Therapeutics, Inc., a Delaware corporation (the “**Company**”). The Warrant entitles the holder thereof to purchase from the Company such number of shares of Common Stock at the price of \$[●] per share (subject to adjustment), upon surrender of this Warrant Certificate and payment of the Warrant Price to American Stock Transfer & Trust Company, LLC (the “**Warrant Agent**”), at its offices designated for such purpose, but only subject to the conditions set forth herein and in the Warrant Agreement between the Company and the Warrant Agent (as may be amended from time to time, the “**Warrant Agreement**”). The Warrant Agreement provides that upon the occurrence of certain events, the Warrant Price and the number of Shares purchasable hereunder, set forth on the face hereof, may, subject to certain conditions, be adjusted. The term “**Warrant Price**” as used in this Warrant Certificate refers to the price per share of Common Stock at which Shares may be purchased at the time the Warrant is exercised. Capitalized terms used and not defined herein shall have the meanings set forth in the Warrant Agreement.

No fraction of a Share will be issued upon any exercise of a Warrant. If the holder of a Warrant would be entitled to receive a fraction of a Share upon any exercise of a Warrant, the Company shall pay a cash adjustment in respect of such fraction in an amount equal to such fraction multiplied by the Exercise Price.

Upon any exercise of the Warrant for less than the total number of full Shares provided for herein, there shall be issued to the registered holder hereof or the registered holder’s assignee a new Warrant Certificate covering the number of Shares for which the Warrant has not been exercised, *provided* that such holder has previously surrendered this Warrant to the Warrant Agent.

Upon surrender of the Warrant Certificate for transfer, properly endorsed with signatures properly guaranteed and accompanied by appropriate instructions for transfer, the Warrant Agent shall register the transfer. A new Warrant Certificate or Warrant Certificates evidencing in the aggregate a like number of Warrants shall be issued and the old Warrant Certificate shall be canceled.

Warrant Certificates, when surrendered to the Warrant Agent, may be transferred or exchanged in the manner and subject to the limitations provided in the Warrant Agreement, but without payment of any service charge, for another Warrant Certificate or Warrant Certificates evidencing in the aggregate a like number of Warrants.

[Signature page to Warrant Certificate]

The Company and the Warrant Agent may deem and treat the registered holder as the absolute owner of this Warrant Certificate (notwithstanding any notation of ownership or other writing hereon made by anyone), for the purpose of any exercise hereof, and for all other purposes, and neither the Company nor the Warrant Agent shall be affected by any notice to the contrary.

This Warrant Certificate does not entitle the registered holder to any of the rights of a stockholder of the Company.

OUTLOOK THERAPEUTICS, INC.

By: _____
Name: _____
Title: _____

COUNTERSIGNED:

AMERICAN STOCK TRANSFER & TRUST COMPANY, LLC
as Warrant Agent

By: _____
Authorized Officer

[Signature page to Warrant Certificate]

ELECTION TO PURCHASE FORM

(to be executed by the registered holder in order to exercise Warrants)

The undersigned registered holder irrevocably elects to exercise Warrants to _____ purchase _____ shares of Common Stock represented by this Warrant Certificate and to purchase such shares of Common Stock issuable upon the exercise of such Warrants, and requests that such shares shall be issued in the name of

(PLEASE TYPE OR PRINT NAME AND ADDRESS)

(SOCIAL SECURITY OR TAX IDENTIFICATION NUMBER)
and be delivered to:

(PLEASE PRINT OR TYPE NAME AND ADDRESS)

and, at the sole election of the registered holder, if such number of Warrants shall not be all the Warrants evidenced by this Warrant Certificate, that a new Warrant Certificate for the balance of such Warrants be registered in the name of, and delivered to, the registered holder at the address stated below:

Dated: _____

(SIGNATURE)

(ADDRESS)

(TAX IDENTIFICATION NUMBER)

ASSIGNMENT

(to be executed by the registered holder in order to assign Warrants)

For Value Received, hereby sells, assigns, and transfers unto

(PLEASE TYPE OR PRINT NAME AND ADDRESS)

(SOCIAL SECURITY OR TAX IDENTIFICATION NUMBER)

and be delivered to:

(PLEASE PRINT OR TYPE NAME AND ADDRESS)

Warrants to purchase _____ shares of Common Stock represented by this Warrant Certificate, and hereby irrevocably constitutes and appoints Attorney to transfer this Warrant Certificate on the books of the Company, with full power of substitution in the premises.

Dated: _____

(SIGNATURE)

The signature to the assignment of the Subscription Form must correspond to the name written upon the face of this Warrant Certificate in every particular, without alteration or enlargement or any change whatsoever, and must be guaranteed by a commercial bank or trust company or a member firm of the American Stock Exchange, New York Stock Exchange, Pacific Stock Exchange or Chicago Stock Exchange.

Exhibit C

[FORM OF CERTIFICATED FIVE-YEAR WARRANT]

OUTLOOK THERAPEUTICS, INC

FIVE-YEAR WARRANT TO PURCHASE COMMON STOCK

Warrant No.: _____

Number of Shares of Common Stock: _____

Date of Issuance: April [●], 2019 (“**Issuance Date**”)

Outlook Therapeutics, Inc., a company organized under the laws of Delaware (the “**Company**”), hereby certifies that, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, [HOLDER], the registered holder hereof or its permitted assigns (the “**Holder**”), is entitled, subject to the terms set forth below, to purchase from the Company, at the Exercise Price (as defined below) then in effect, at any time or times on or after April [●], 2019 (the “**Initial Exercisability Date**”), but not after 11:59 p.m., New York time, on the Expiration Date, (as defined below), _____ (_____) fully paid non-assessable shares of Common Stock (as defined below), subject to adjustment as provided herein (the “**Warrant Shares**”). Except as otherwise defined herein, capitalized terms in this Warrant to Purchase Common Stock (including any Warrants to Purchase Common Stock issued in exchange, transfer or replacement hereof, this “**Warrant**”), shall have the meanings set forth in Section 16. This Warrant is one of the Five-Year Warrants to Purchase Common Stock (the “**Warrants**”) issued pursuant to (i) that certain Underwriting Agreement, dated as of April [●], 2019 (the “**Subscription Date**”) by and between the Company and Oppenheimer & Co. Inc. as representative of the several underwriters named therein, (ii) the Company’s Registration Statement on Form S-1 (File number 333-229761) (the “**Registration Statement**”). This Warrant shall initially be issued and maintained in the form of a security held in book-entry form and the Depository Trust Company or its nominee (“**DTC**”) shall initially be the sole registered holder of this Warrant, subject to a Holder’s right to elect to receive a Warrant in certificated form pursuant to the terms of the Warrant Agent Agreement, in which case this sentence shall not apply.

1. EXERCISE OF WARRANT.

(a) Mechanics of Exercise. Subject to the terms and conditions hereof (including, without limitation, the limitations set forth in Section 1(f)), this Warrant may be exercised by the Holder at any time or times on or after the Initial Exercisability Date, in whole or in part, by delivery (whether via facsimile, electronic mail or otherwise) of a written notice, in the form attached hereto as Exhibit A (the “**Exercise Notice**”), of the Holder's election to exercise this Warrant. Within one (1) Trading Day following the delivery of the Exercise Notice, the Holder shall make payment to the Company of an amount equal to the Exercise Price in effect on the date of such exercise multiplied by the number of Warrant Shares as to which this Warrant is being exercised (the “**Aggregate Exercise Price**”) in cash by wire transfer of immediately available funds or, if the provisions of Section 1(d) are applicable, by notifying the Company that this Warrant is being exercised pursuant to a Cashless Exercise (as defined in Section 1(d)). The Holder shall not be required to deliver the original Warrant in order to effect an exercise hereunder, nor shall any ink-original signature or medallion guarantee (or other type of guarantee or notarization) with respect to any Exercise Notice be required. Execution and delivery of the Exercise Notice with respect to less than all of the Warrant Shares shall have the same effect as cancellation of the original Warrant and issuance of a new Warrant evidencing the right to purchase the remaining number of Warrant Shares and 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 three (3) Trading Days of the date on which the final Exercise Notice is delivered to the Company. On or before the first (1st) Trading Day following the date on which the Holder has delivered the applicable Exercise Notice, the Company shall transmit by facsimile or electronic mail an acknowledgment of confirmation of receipt of the Exercise Notice, in the form attached to the Exercise Notice, to the Holder and the Company's transfer agent (the “**Transfer Agent**”). So long as the Holder delivers the Aggregate Exercise Price (or notice of a Cashless Exercise, if applicable) on or prior to the first (1st) Trading Day following the date on which the Exercise Notice has been delivered to the Company, then on or prior to the earlier of (i) the second (2nd) Trading Day and (ii) the number of Trading Days comprising the Standard Settlement Period, in each case following the date on which the Exercise Notice has been delivered to the Company, or, if the Holder does not deliver the Aggregate Exercise Price (or notice of a Cashless Exercise, if applicable) on or prior to the first (1st) Trading Day following the date on which the Exercise Notice has been delivered to the Company, then on or prior to the first (1st) Trading Day following the date on which the Aggregate Exercise Price (or notice of a Cashless Exercise) is delivered (such earlier date, or if later, the earliest day on which the Company is required to deliver Warrant Shares pursuant to this Section 1(a), the “**Share Delivery Date**”), the Company shall (X) *provided* that the Transfer Agent is participating in The Depository Trust Company (“**DTC**”) Fast Automated Securities Transfer Program, credit such aggregate number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the Holder's or its designee's balance account with DTC through its Deposit / Withdrawal At Custodian system, or (Y) if the Transfer Agent is not participating in the DTC Fast Automated Securities Transfer Program, issue and dispatch by overnight courier to the address or e-mail address as specified in the Exercise Notice, evidence of credit of book-entry shares, registered 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. If the Company fails for any reason to deliver to such registered holder or Participant, as the case may be, the Warrant Shares subject to an exercise notice by the Share Delivery Date, the Company shall pay to the registered 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 Weighted Average Price of the Common Stock on the date of the applicable exercise notice), \$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 Share Delivery Date until such Warrant Shares are delivered or the registered holder rescinds such exercise. The Company shall be responsible for all fees and expenses of the Transfer Agent and all fees and expenses with respect to the issuance of Warrant Shares via DTC, if any, including without limitation for same day processing. Upon delivery of the Exercise Notice, the Holder shall be deemed for all corporate purposes to have become the holder of record and beneficial owner of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date such Warrant Shares are credited to the Holder's DTC account or the date of delivery of the certificates evidencing such Warrant Shares, as the case may be. If this Warrant is physically delivered to the Company in connection with any exercise pursuant to this Section 1(a) and the number of Warrant Shares represented by this Warrant submitted for exercise is greater than the number of Warrant Shares being acquired upon an exercise, then the Company shall as soon as practicable and in no event later than three (3) Trading Days after any exercise and at its own expense, issue and deliver to the Holder (or its designee) a new Warrant (in accordance with Section 7(d)) representing the right to purchase the number of Warrant Shares issuable immediately prior to such exercise under this Warrant, less the number of Warrant Shares with respect to which this Warrant is exercised. No fractional Warrant Shares are to be issued upon the exercise of this Warrant, but rather the Company shall pay a cash adjustment equal to such fraction multiplied by the Exercise Price. The Company shall pay any and all transfer, stamp, issuance and similar taxes, costs and expenses (including, without limitation, fees and expenses of the Transfer Agent) that may be payable with respect to the issuance and delivery of Warrant Shares upon exercise of this Warrant. The Company's obligations to issue and deliver Warrant Shares in accordance with the terms and subject to the conditions hereof are absolute and unconditional, irrespective of any action or inaction by the Holder to enforce the same, any waiver or consent with respect to any provision hereof, the recovery of any judgment against any Person or any action to enforce the same, or any setoff, counterclaim, recoupment, limitation or termination; provided, however, that the Company shall not be required to deliver Warrant Shares with respect to an exercise prior to the Holder's delivery of the Aggregate Exercise Price (or notice of a Cashless Exercise) with respect to such exercise.

(b) Exercise Price. For purposes of this Warrant, “**Exercise Price**” means \$[●] per share, subject to adjustment as provided herein.

(c) Company's Failure to Timely Deliver Securities. If either (I) the Company shall fail for any reason or for no reason on or prior to the applicable Share Delivery Date, if (x) the Transfer Agent is not participating in the DTC Fast Automated Securities Transfer Program, to issue to the Holder by book-entry credit the number of shares of Common Stock to which the Holder is entitled and register such Common Stock on the Company's share register or (y) the Transfer Agent is participating in the DTC Fast Automated Securities Transfer Program, to credit the Holder's balance account with DTC, for such number of shares of Common Stock to which the Holder is entitled upon the Holder's exercise of this Warrant or (II) a registration statement (which may be the Registration Statement) covering the issuance or resale of the Warrant Shares that are the subject of the Exercise Notice (the “**Exercise Notice Warrant Shares**”) is not available for the issuance or resale, as applicable, of such Exercise Notice Warrant Shares and (x) the Company fails to promptly, but in no event later than one (1) Business Day after such registration statement becomes unavailable, to so notify the Holder and (y) the Company is unable to deliver the Exercise Notice Warrant Shares electronically without any restrictive legend by crediting such aggregate number of Exercise Notice Warrant Shares to the Holder's or its designee's balance account with DTC through its Deposit / Withdrawal At Custodian system (the event described in the immediately foregoing clause (II) is hereinafter referred to as a “**Notice Failure**” and, together with the event described in clause (I) above, an “**Exercise Failure**”), then, in addition to all other remedies available to the Holder, if on or prior to the applicable Share Delivery Date either (I) if the Transfer Agent is not participating in the DTC Fast Automated Securities Transfer Program, the Company shall fail to issue by book-entry credit to the Holder and register such shares of Common Stock on the Company's share register or, if the Transfer Agent is participating in the DTC Fast Automated Securities Transfer Program, credit the Holder's balance account with DTC for the number of shares of Common Stock to which the Holder is entitled upon the Holder's exercise hereunder or pursuant to the Company's obligation pursuant to clause (ii) below or (II) a Notice Failure occurs, and if on or after such Trading Day 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 that the Holder anticipated receiving upon such exercise from the Company (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 and other out-of-pocket expenses, 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 credit by book entry the Warrant Shares (or to electronically deliver such Warrant Shares) upon the exercise of this Warrant as required pursuant to the terms hereof. While this Warrant is outstanding, the Company shall cause its transfer agent to participate in the DTC Fast Automated Securities Transfer Program. In addition to the foregoing rights, (i) if the Company fails to deliver the applicable number of Warrant Shares upon an exercise pursuant to Section 1 by the applicable Share Delivery Date, then the Holder shall have the right to rescind such exercise in whole or in part and retain and/or have the Company return, as the case may be, any portion of this Warrant that has not been exercised pursuant to such Exercise Notice; *provided* that the rescission of an exercise shall not affect the Company's obligation to make any payments that have accrued prior to the date of such notice pursuant to this Section 1(c) or otherwise, and (ii) if a registration statement (which may be the Registration Statement) covering the issuance or resale of the Warrant Shares that are subject to an Exercise Notice is not available for the issuance or resale, as applicable, of such Exercise Notice Warrant Shares and the Holder has submitted an Exercise Notice prior to receiving notice of the non-availability of such registration statement and the Company has not already delivered the Warrant Shares underlying such Exercise Notice electronically without any restrictive legend by crediting such aggregate number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the Holder's or its designee's balance account with DTC through its Deposit / Withdrawal At Custodian system, the Holder shall have the option, by delivery of notice to the Company, to (x) rescind such Exercise Notice in whole or in part and retain or have returned, as the case may be, any portion of this Warrant that has not been exercised pursuant to such Exercise Notice; *provided* that the rescission of an Exercise Notice shall not affect the Company's obligation to make any payments that have accrued prior to the date of such notice pursuant to this Section 1(c) or otherwise, and/or (y) switch some or all of such Exercise Notice from a cash exercise to a Cashless Exercise.

(d) Cashless Exercise. Notwithstanding anything contained herein to the contrary, if a registration statement (which may be the Registration Statement) covering the issuance or resale of the Exercise Notice Warrant Shares is not available for the issuance or resale, as applicable, of such Exercise Notice Warrant Shares, the Holder may, in its sole discretion, exercise this Warrant in whole or in part and, in lieu of making the cash payment otherwise contemplated to be made to the Company upon such exercise in payment of the Aggregate Exercise Price, elect instead to receive upon such exercise the "Net Number" of shares of Common Stock determined according to the following formula (a "**Cashless Exercise**"):

$$\text{Net Number} = \frac{(A \times B) - (A \times C)}{B}$$

For purposes of the foregoing formula:

A= the total number of shares with respect to which this Warrant is then being exercised.

B= as applicable: (i) the Closing Sale Price of the Common Stock on the Trading Day immediately preceding the date of the applicable Exercise Notice if such Exercise Notice is (1) both executed and delivered pursuant to Section 1(a) hereof on a day that is not a Trading Day or (2) both executed and delivered pursuant to Section 1(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) at the option of the Holder, either (y) the Weighted Average Price on the Trading Day immediately preceding the date of the applicable Notice of Exercise or (z) the Bid Price of the Common Stock as of the time of the Holder's execution of the applicable Exercise Notice if such Exercise Notice is executed during "regular trading hours" on a Trading Day and is delivered within two (2) hours thereafter (including until two (2) hours after the close of "regular trading hours" on a Trading Day) pursuant to Section 1(a) hereof or (iii) the Closing Sale Price of the Common Stock on the date of the applicable Exercise Notice if the date of such Exercise Notice is a Trading Day and such Exercise Notice is both executed and delivered pursuant to Section 1(a) hereof after the close of "regular trading hours" on such Trading Day.

C= the Exercise Price then in effect for the applicable Warrant Shares at the time of such exercise.

The Company agrees to make all calculations related to a Cashless Exercise and will provide the Warrant Agent with issuance instructions.

If Warrant Shares are issued in such a cashless exercise, the Company acknowledges and agrees that in accordance with Section 3(a)(9) of the 1933 Act, the Warrant Shares shall take on the registered characteristics of the Warrants being exercised, and the holding period of the Warrants being exercised may be tacked on to the holding period of the Warrant Shares. The Company agrees not to take any position contrary to this Section 1(d). Without limiting the rights of a Holder to receive Warrant Shares on a “cashless exercise,” and to receive the cash payments contemplated pursuant to Sections 1(a), 1(c) and 4(b), in no event will the Company be required to pay to the Holder any cash or other consideration or otherwise net cash settle a Warrant exercise.

(e) Disputes. In the case of a dispute as to the determination of the Exercise Price or the arithmetic calculation of the Warrant Shares, the Company shall promptly issue to the Holder the number of Warrant Shares that are not disputed and resolve such dispute in accordance with Section 11.

(f) Beneficial Ownership. Notwithstanding anything to the contrary contained herein, the Company shall not effect the exercise of any portion of this Warrant, and the Holder shall not have the right to exercise any portion of this Warrant, pursuant to the terms and conditions of this Warrant and any such exercise shall be null and void and treated as if never made, to the extent that after giving effect to such exercise, the Holder together with the other Attribution Parties collectively would beneficially own in excess of [4.99%][9.99%] (the “**Maximum Percentage**”) of the number of shares of Common Stock outstanding immediately after giving effect to such exercise. For purposes of the foregoing sentence, the aggregate number of shares of Common Stock beneficially owned by the Holder and the other Attribution Parties shall include the number of shares of Common Stock held by the Holder and all other Attribution Parties plus the number of shares of Common Stock issuable upon exercise of this Warrant with respect to which the determination of such sentence is being made, but shall exclude the number of shares of Common Stock that would be issuable upon (A) exercise of the remaining, unexercised portion of this Warrant beneficially owned by the Holder or any of the other Attribution Parties and (B) exercise or conversion of the unexercised or unconverted portion of any other securities of the Company (including, without limitation, any convertible notes or convertible preferred stock or warrants, including the other Warrants) beneficially owned by the Holder or any other Attribution Party subject to a limitation on conversion or exercise analogous to the limitation contained in this Section 1(f). For purposes of this Section 1(f), beneficial ownership shall be calculated in accordance with Section 13(d) of the Securities Exchange Act of 1934, as amended (the “**1934 Act**”). For purposes of this Warrant, in determining the number of outstanding shares of Common Stock the Holder may acquire upon the exercise of this Warrant without exceeding the Maximum Percentage, the Holder may rely on the number of outstanding shares of Common Stock as reflected in (x) the Company's most recent Annual Report on Form 10-K, Quarterly Report on Form 10-Q and Current Reports on Form 8-K or other public filing with the Securities and Exchange Commission (the “**SEC**”), as the case may be, (y) a more recent public announcement by the Company or (z) any other written notice by the Company or the Transfer Agent setting forth the number of shares of Common Stock outstanding (the “**Reported Outstanding Share Number**”). If the Company receives an Exercise Notice from the Holder at a time when the actual number of outstanding shares of Common Stock is less than the Reported Outstanding Share Number, the Company shall (i) notify the Holder in writing of the number of shares of Common Stock then outstanding and, to the extent that such Exercise Notice would otherwise cause the Holder's beneficial ownership, as determined pursuant to this Section 1(f), to exceed the Maximum Percentage, the Holder must notify the Company of a reduced number of Warrant Shares to be purchased pursuant to such Exercise Notice (the number of shares by which such purchase is reduced, the “**Reduction Shares**”) and (ii) as soon as reasonably practicable, the Company shall return to the Holder any exercise price paid by the Holder for the Reduction Shares. For any reason at any time, upon the written or oral request of the Holder, the Company shall within one (1) Business Day confirm orally and in writing or by electronic mail 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 and any other Attribution Party since the date as of which the Reported Outstanding Share Number was reported. In the event that the issuance of Common Stock to the Holder upon exercise of this Warrant results in the Holder and the other Attribution Parties being deemed to beneficially own, in the aggregate, more than the Maximum Percentage of the number of outstanding shares of Common Stock (as determined under Section 13(d) of the 1934 Act), the number of shares so issued by which the Holder's and the other Attribution Parties' aggregate beneficial ownership exceeds the Maximum Percentage (the “**Excess Shares**”) shall be deemed null and void and shall be cancelled ab initio, and the Holder shall not have the power to vote or to transfer the Excess Shares. As soon as reasonably practicable after the issuance of the Excess Shares has been deemed null and void, the Company shall return to the Holder the exercise price paid by the Holder for the Excess Shares. Upon delivery of a written notice to the Company, the Holder may from time to time increase or decrease the Maximum Percentage to any other percentage not in excess of 9.99% as specified in such notice; *provided* that (i) any such increase in the Maximum Percentage will not be effective until the sixty-first (61st) day after such notice is delivered to the Company and (ii) any such increase or decrease will apply only to the Holder and the other Attribution Parties and not to any other holder of Warrants that is not an Attribution Party of the Holder. For purposes of clarity, the shares of Common Stock issuable pursuant to the terms of this Warrant in excess of the Maximum Percentage shall not be deemed to be beneficially owned by the Holder for any purpose including for purposes of Section 13(d) or Rule 16a-1(a)(1) of the 1934 Act. No prior inability to exercise this Warrant pursuant to this paragraph shall have any effect on the applicability of the provisions of this paragraph with respect to any subsequent determination of exercisability. The provisions of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 1(f) to the extent necessary to correct this paragraph or any portion of this paragraph that may be defective or inconsistent with the intended beneficial ownership limitation contained in this Section 1(f) or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitation contained in this paragraph may not be waived and shall apply to a successor holder of this Warrant.

(g) Required Reserve Amount. So long as this Warrant remains outstanding, the Company shall at all times keep reserved for issuance under this Warrant a number of shares of Common Stock at least equal to 100% of the maximum number of shares of Common Stock as shall be necessary to satisfy the Company's obligation to issue shares of Common Stock under the Warrants then outstanding (without regard to any limitations on exercise) (the "**Required Reserve Amount**"); *provided* that at no time shall the number of shares of Common Stock reserved pursuant to this Section 1(g) be reduced other than in connection with any exercise of Warrants or such other event covered by Section 2(c) below. The Required Reserve Amount (including, without limitation, each increase in the number of shares so reserved) shall be allocated pro rata among the holders of the Warrants based on the number of shares of Common Stock issuable upon exercise of Warrants held by each holder thereof on the Issuance Date (without regard to any limitations on exercise) (the "**Authorized Share Allocation**"). In the event that a holder shall sell or otherwise transfer any of such holder's Warrants, each transferee shall be allocated a pro rata portion of such holder's Authorized Share Allocation. Any shares of Common Stock reserved and allocated to any Person that ceases to hold any Warrants shall be allocated to the remaining holders of Warrants, pro rata based on the number of shares of Common Stock issuable upon exercise of the Warrants then held by such holders thereof (without regard to any limitations on exercise).

(h) Insufficient Authorized Shares. If at any time while this Warrant remains outstanding the Company does not have a sufficient number of authorized and unreserved shares of Common Stock to satisfy its obligation to reserve for issuance the Required Reserve Amount (an "**Authorized Share Failure**"), then the Company shall promptly take all action reasonably necessary to increase the Company's authorized shares of Common Stock to an amount sufficient to allow the Company to reserve the Required Reserve Amount for this Warrant then outstanding. Without limiting the generality of the foregoing sentence, as soon as practicable after the date of the occurrence of an Authorized Share Failure, but in no event later than ninety (90) days after the occurrence of such Authorized Share Failure, the Company shall hold a meeting of its stockholders for the approval of an increase in the number of authorized shares of Common Stock. In connection with such meeting, the Company shall provide each stockholder with a proxy statement and shall use its reasonable best efforts to solicit its stockholders' approval of such increase in authorized shares of Common Stock and to cause its board of directors to recommend to the stockholders that they approve such proposal. Notwithstanding the foregoing, if any such time of an Authorized Share Failure, the Company is able to obtain the written consent of a majority of the shares of its issued and outstanding shares of Common Stock to approve the increase in the number of authorized shares of Common Stock, the Company may satisfy this obligation by obtaining such consent and submitting for filing with the SEC an Information Statement on Schedule 14C.

2. ADJUSTMENT OF EXERCISE PRICE AND NUMBER OF WARRANT SHARES. The Exercise Price and the number of Warrant Shares shall be adjusted from time to time as follows:

(a) Adjustment Upon Issuance of Common Stock. If and whenever on or after the Subscription Date, the Company issues or sells, or in accordance with this Section 2 is deemed to have issued or sold, any shares of Common Stock (including the issuance or sale of shares of Common Stock owned or held by or for the account of the Company, but excluding shares of Common Stock deemed to have been issued or sold by the Company in connection with any Excluded Securities) for a consideration per share (the “**New Issuance Price**”) less than a price (the “**Applicable Price**”) equal to the Exercise Price in effect immediately prior to such issuance or sale or deemed issuance or sale (the foregoing a “**Dilutive Issuance**”), then immediately after such Dilutive Issuance, the Exercise Price then in effect shall be reduced to an amount equal to the New Issuance Price. For purposes of determining the adjusted Exercise Price under this Section 2(a), the following shall be applicable:

(i) Issuance of Options. If the Company in any manner grants or sells any Options and the lowest price per share for which one share of Common Stock is issuable upon the exercise of any such Options or upon conversion, exercise or exchange of any Convertible Securities issuable upon exercise of any such Options is less than the Applicable Price, then such share of Common Stock shall be deemed to be outstanding and to have been issued and sold by the Company at the time of the granting or sale of such Options for such price per share. For purposes of this Section 2(a)(i), the “lowest price per share for which one share of Common Stock is issuable upon the exercise of any such Options or upon conversion, exercise or exchange of any Convertible Securities issuable upon exercise of any such Options” shall be equal to the sum of the lowest amounts of consideration (if any) received or receivable by the Company with respect to any one share of Common Stock upon the granting or sale of the Options, upon exercise of the Options and upon conversion, exercise or exchange of any Convertible Security issuable upon exercise of such Options less any consideration paid or payable by the Company with respect to such one share of Common Stock upon the granting or sale of such Options, upon exercise of such Options and upon conversion exercise or exchange of any Convertible Security issuable upon exercise of such Options. No further adjustment of the Exercise Price shall be made upon the actual issuance of such shares of Common Stock or of such Convertible Securities upon the exercise of such Options or upon the actual issuance of such shares of Common Stock upon conversion, exercise or exchange of such Convertible Securities.

(ii) Issuance of Convertible Securities. If the Company in any manner issues or sells any Convertible Securities and the lowest price per share for which one share of Common Stock is issuable upon the conversion, exercise or exchange thereof is less than the Applicable Price, then such share of Common Stock shall be deemed to be outstanding and to have been issued and sold by the Company at the time of the issuance or sale of such Convertible Securities for such price per share. For the purposes of this Section 2(a)(ii), the “lowest price per share for which one share of Common Stock is issuable upon the conversion, exercise or exchange thereof” shall be equal to the sum of the lowest amounts of consideration (if any) received or receivable by the Company with respect to any one share of Common Stock upon the issuance or sale of the Convertible Security and upon conversion, exercise or exchange of such Convertible Security less any consideration paid or payable by the Company with respect to such one share of Common Stock upon the issuance or sale of such Convertible Security and upon conversion, exercise or exchange of such Convertible Security. No further adjustment of the Exercise Price shall be made upon the actual issuance of such shares of Common Stock upon conversion, exercise or exchange of such Convertible Securities, and if any such issuance or sale of such Convertible Securities is made upon exercise of any Options for which adjustment of the Exercise Price has been or is to be made pursuant to other provisions of this Section 2(a), no further adjustment of the Exercise Price shall be made by reason of such issuance or sale.

(iii) Change in Option Price or Rate of Conversion. If the purchase price provided for in any Options, the additional consideration, if any, payable upon the issue, conversion, exercise or exchange of any Convertible Securities, or the rate at which any Convertible Securities are convertible into or exercisable or exchangeable for shares of Common Stock increases or decreases at any time pursuant to the terms of such Options or Convertible Securities, the Exercise Price in effect at the time of such increase or decrease shall be adjusted to the Exercise Price, that would have been in effect at such time had such Options or Convertible Securities provided for such increased or decreased purchase price, additional consideration or increased or decreased conversion rate, as the case may be, at the time initially granted, issued or sold. For purposes of this Section 2(a)(iii), if the terms of any Option or Convertible Security that was outstanding as of the Subscription Date are increased or decreased in the manner described in the immediately preceding sentence, then such Option or Convertible Security and the shares of Common Stock deemed issuable upon exercise, conversion or exchange thereof shall be deemed to have been issued as of the date of such increase or decrease. No adjustment pursuant to this Section 2(a) shall be made if such adjustment would result in an increase of the Exercise Price then in effect. For the avoidance of doubt, no adjustment in the Exercise Price shall be made pursuant to this Section 2(a)(iii) as a result of any modification of the terms of any Options or Convertible Securities after their date of issuance.

(iv) Calculation of Consideration Received. In case any Option is issued in connection with the issuance or sale of other securities of the Company, together comprising one integrated transaction, (x) the Options will be deemed to have been issued for the Option Value of such Options and (y) the other securities issued or sold in such integrated transaction shall be deemed to have been issued or sold for the difference of (I) the aggregate consideration received by the Company less any consideration paid or payable by the Company pursuant to the terms of such other securities of the Company, less (II) the Option Value of such Options; *provided*, that if the value determined pursuant to clause (y) above would result in a value less than the par value of the Common Stock, then the other securities issued or sold in such integrated transaction shall be deemed to have been issued or sold for the par value of the Common Stock. If any shares of Common Stock, Options or Convertible Securities are issued or sold or deemed to have been issued or sold for cash, the consideration received therefor will be deemed to be the net amount received by the Company therefor. If any shares of Common Stock, Options or Convertible Securities are issued or sold for a consideration other than cash, the amount of such consideration received by the Company will be the fair value of such consideration, except where such consideration consists of publicly traded securities, in which case the amount of consideration received by the Company will be the Closing Sale Price of such publicly traded securities on the date of receipt of such publicly traded securities. If any shares of Common Stock, Options or Convertible Securities are issued to the owners of the non-surviving entity in connection with any merger in which the Company is the surviving entity, the amount of consideration therefor will be deemed to be the fair value of such portion of the net assets and business of the non-surviving entity as is attributable to such shares of Common Stock, Options or Convertible Securities, as the case may be. The fair value of any consideration other than cash or publicly traded securities will be determined jointly by the Company and the Required Holders. If such parties are unable to reach agreement within ten (10) days after the occurrence of an event requiring valuation (the “**Valuation Event**”), the fair value of such consideration will be determined within five (5) Business Days after the tenth (10th) day following the Valuation Event by an independent, reputable appraiser jointly selected by the Company and the Required Holders. The determination of such appraiser shall be final and binding upon all parties absent manifest error and the fees and expenses of such appraiser shall be borne by the Company.

(v) Record Date. If the Company takes a record of the holders of Common Stock for the purpose of entitling them (A) to receive a dividend or other distribution payable in shares of Common Stock, Options or in Convertible Securities or (B) to subscribe for or purchase shares of Common Stock, Options or Convertible Securities, then such record date will be deemed to be the date of the issuance or sale of the shares of Common Stock deemed to have been issued or sold upon the declaration of such dividend or the making of such other distribution or the date of the granting of such right of subscription or purchase, as the case may be.

(vi) No Modification. So long as any of the Warrants are outstanding, the Company shall not amend, modify or change the terms of any Options or Convertible Securities (whether issued on, prior or after the Subscription Date) to lower the exercise price or conversion price thereof.

(b) Voluntary Adjustment by Company. The Company may at any time during the term of this Warrant 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.

(c) Adjustment upon Subdivision or Combination of Common Stock. If the Company at any time on or after the Subscription Date subdivides (by any stock split, stock dividend, recapitalization or otherwise) one or more classes of its outstanding shares of Common Stock into a greater number of shares, the Exercise Price in effect immediately prior to such subdivision will be proportionately reduced and the number of Warrant Shares will be proportionately increased. If the Company at any time on or after the Subscription Date combines (by combination, reverse stock split or otherwise) one or more classes of its outstanding shares of Common Stock into a smaller number of shares, the Exercise Price in effect immediately prior to such combination will be proportionately increased and the number of Warrant Shares will be proportionately decreased. Any adjustment under this Section 2(c) shall become effective at the close of business on the date the subdivision or combination becomes effective.

3. RIGHTS UPON DISTRIBUTION OF ASSETS. In addition to any adjustments pursuant to Section 2 above, if, on or after the Subscription Date and on or prior to the Expiration Date, 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, options, evidence of indebtedness or any other assets 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 or restrictions on exercise of this Warrant, including without limitation, the Maximum Percentage) immediately before the date on 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*, that to the extent that the Holder's right to participate in any such Distribution would result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, then the Holder shall not be entitled to participate in such Distribution to such extent (and shall not be entitled to beneficial ownership of such shares of Common Stock as a result of such Distribution (and beneficial ownership) to such extent) and the portion of such Distribution shall be held in abeyance for the benefit of the Holder until such time or times as its right thereto would not result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, at which time or times the Holder shall be granted such Distribution (and any Distributions declared or made on such initial Distribution or on any subsequent Distribution held similarly in abeyance) to the same extent as if there had been no such limitation).

4. PURCHASE RIGHTS; FUNDAMENTAL TRANSACTIONS.

(a) Purchase Rights. In addition to any adjustments pursuant to Section 2 above, if at any time on or after the Subscription Date and on or prior to the Expiration Date the Company grants, issues or sells any Options, Convertible Securities or rights to purchase stock, warrants, securities or other property pro rata to the record holders of any class 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 that 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 or restrictions on exercise of this Warrant, including without limitation, the Maximum Percentage) 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 Common Stock are to be determined for the grant, issuance or sale of such Purchase Rights (*provided, however*, that to the extent that the Holder's right to participate in any such Purchase Right would result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, then the Holder shall not be entitled to participate in such Purchase Right to such extent (and shall not be entitled to beneficial ownership of such Common Stock as a result of such Purchase Right (and beneficial ownership) to such extent) and such Purchase Right to such extent shall be held in abeyance for the benefit of the Holder until such time or times as its right thereto would not result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, at which time or times the Holder shall be granted such right (and any Purchase Right granted, issued or sold on such initial Purchase Right or on any subsequent Purchase Right to be held similarly in abeyance) to the same extent as if there had been no such limitation).

(b) Fundamental Transaction. The Company shall not enter into or be party to a Fundamental Transaction unless the Successor Entity assumes in writing all of the obligations of the Company under this Warrant in accordance with the provisions of this Section 4(b), including agreements to 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, including, without limitation, that is exercisable for a corresponding number of shares of capital stock 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 that 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 adjustments to the 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). Upon the consummation of each Fundamental Transaction, the Successor Entity shall succeed to, and be substituted for the Company (so that from and after the date of the applicable Fundamental Transaction, the provisions of this Warrant and the other Transaction Documents referring to the "Company" shall refer instead to the Successor Entity), and may exercise every right and power of the Company and shall assume all of the obligations of the Company under this Warrant with the same effect as if such Successor Entity had been named as the Company herein. Upon consummation of each Fundamental Transaction, the Successor Entity shall deliver to the Holder confirmation that there shall be issued upon exercise of this Warrant at any time after the consummation of the applicable Fundamental Transaction, in lieu of the shares of Common Stock (or other securities, cash, assets or other property (except such items still issuable under Sections 3 and 4(a) above, which shall continue to be receivable thereafter)) issuable upon the exercise of this Warrant prior to the applicable Fundamental Transaction, such shares of common stock (or its equivalent) of the Successor Entity (including its Parent Entity) that the Holder would have been entitled to receive upon the happening of the applicable Fundamental Transaction had this Warrant been exercised immediately prior to the applicable Fundamental Transaction (without regard to any limitations on the exercise of this Warrant), as adjusted in accordance with the provisions of this Warrant. Notwithstanding the foregoing, and without limiting Section 1(f) hereof, the Holder may elect, at its sole option, by delivery of written notice to the Company to waive this Section 4(b) to permit the Fundamental Transaction without the assumption of this Warrant. In addition to and not in substitution for any other rights hereunder, prior to the consummation of each Fundamental Transaction pursuant to which holders of shares of Common Stock are entitled to receive securities or other assets with respect to or in exchange for shares of Common Stock (a "Corporate Event"), the Company shall make appropriate provision to insure that the Holder will thereafter have the right to receive upon an exercise of this Warrant at any time after the consummation of the applicable Fundamental Transaction but prior to the Expiration Date, in lieu of the shares of the Common Stock (or other securities, cash, assets or other property (except such items still issuable under Sections 3 and 4(a) above, which shall continue to be receivable thereafter)) issuable upon the exercise of the Warrant prior to such Fundamental Transaction, such shares of stock, securities, cash, assets or any other property whatsoever (including warrants or other purchase or subscription rights) (collectively, the "Corporate Event Consideration") that the Holder would have been entitled to receive upon the happening of the applicable Fundamental Transaction had this Warrant been exercised immediately prior to the applicable Fundamental Transaction (without regard to any limitations on the exercise of this Warrant). The provision made pursuant to the preceding sentence shall be in a form and substance reasonably satisfactory to the Holder. The provisions of this Section 4(b) shall apply similarly and equally to successive Fundamental Transactions and Corporate Events. Notwithstanding the foregoing, in the event of a Change of Control, at the request of the Holder delivered before the 30th day after such Change of Control, the Company (or the Successor Entity) shall purchase this Warrant from the Holder by paying to the Holder, within five (5) Business Days after such request (or, if later, on the effective date of the Change of Control), an amount equal to the Black Scholes Value of the remaining unexercised portion of this Warrant on the effective date of such Change of Control, payable in cash; *provided, however*, that, if the Change of Control is not within the Company's control, including not approved by the Company's Board of Directors, the Holder shall only be entitled to receive from the Company or any Successor Entity, as of the date of consummation of such Change of Control, the same type or form of consideration (and in the same proportion), at the Black Scholes Value of the unexercised portion of this Warrant, that is being offered and paid to the holders of Common Stock of the Company in connection with the Change of Control, whether that consideration be in the form of cash, stock or any combination thereof, or whether the holders of Common Stock are given the choice to receive from among alternative forms of consideration in connection with the Change of Control.

5. NONCIRCUMVENTION. The Company hereby covenants and agrees that the Company will not, by amendment of its Certificate of Incorporation or Bylaws, or through any reorganization, transfer of assets, consolidation, merger, scheme of arrangement, dissolution, issuance 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, and will at all times in good faith carry out all of the provisions of this Warrant and take all action as may be required to protect the rights of the Holder. Without limiting the generality of the foregoing, the Company (i) shall not increase the par value of any shares of Common Stock receivable upon the exercise of this Warrant above the Exercise Price then in effect, (ii) shall take all such actions as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable shares of Common Stock upon the exercise of this Warrant, and (iii) shall, so long as any of the Warrants are outstanding, take all action necessary to reserve and keep available out of its authorized and unissued shares of Common Stock, solely for the purpose of effecting the exercise of the Warrants, the number of shares of Common Stock as shall from time to time be necessary to effect the exercise of the Warrants then outstanding (without regard to any limitations on exercise).

6. WARRANT HOLDER NOT DEEMED A STOCKHOLDER. Except as otherwise specifically provided herein, the Holder, solely in such Person's capacity as a holder of this Warrant, shall not be entitled to vote or receive dividends or be deemed the holder of capital stock of the Company for any purpose, nor shall anything contained in this Warrant be construed to confer upon the Holder, solely in such Person's capacity as the Holder of this Warrant, any of the rights of a stockholder of the Company or any right to vote, give or withhold consent to any corporate action (whether any reorganization, issue of stock, reclassification of stock, consolidation, merger, conveyance or otherwise), receive notice of meetings, receive dividends or subscription rights, or otherwise, prior to the issuance to the Holder of the Warrant Shares that such Person is then entitled to receive upon the due exercise of this Warrant. In addition, nothing contained in this Warrant shall be construed as imposing any liabilities on the Holder to purchase any securities (upon exercise of this Warrant or otherwise) or as a stockholder of the Company, whether such liabilities are asserted by the Company or by creditors of the Company. Notwithstanding this Section 6, the Company shall provide the Holder with copies of the same notices and other information given to the stockholders of the Company generally, contemporaneously with the giving thereof to the stockholders.

7. REISSUANCE OF WARRANTS.

(a) Transfer of Warrant. If this Warrant is to be transferred, the Holder shall surrender this Warrant to the Company, whereupon the Company will forthwith issue and deliver upon the order of the Holder a new Warrant (in accordance with Section 7(d)), registered as the Holder may request, representing the right to purchase the number of Warrant Shares being transferred by the Holder and, if less than the total number of Warrant Shares then underlying this Warrant is being transferred, a new Warrant (in accordance with Section 7(d)) to the Holder representing the right to purchase the number of Warrant Shares not being transferred.

(b) Lost, Stolen or Mutilated Warrant. Upon receipt by the Company of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant, and, in the case of loss, theft or destruction, of any indemnification undertaking by the Holder to the Company in customary form (but without the obligation to post a bond) and, in the case of mutilation, upon surrender and cancellation of this Warrant, the Company shall execute and deliver to the Holder a new Warrant (in accordance with Section 7(d)) representing the right to purchase the Warrant Shares then underlying this Warrant.

(c) Exchangeable for Multiple Warrants. This Warrant is exchangeable, upon the surrender hereof by the Holder at the principal office of the Company, for a new Warrant or Warrants (in accordance with Section 7(d)) representing in the aggregate the right to purchase the number of Warrant Shares then underlying this Warrant, and each such new Warrant will represent the right to purchase such portion of such Warrant Shares as is designated by the Holder at the time of such surrender.

(d) Issuance of New Warrants. If this Warrant is not held in global form through DTC (or any successor depository), whenever the Company is required to issue a new Warrant pursuant to the terms of this Warrant, such new Warrant (i) shall be of like tenor with this Warrant, (ii) shall represent, as indicated on the face of such new Warrant, the right to purchase the Warrant Shares then underlying this Warrant (or in the case of a new Warrant being issued pursuant to Section 7(a) or Section 7(c), the Warrant Shares designated by the Holder that, when added to the number of shares of Common Stock underlying the other new Warrants issued in connection with such issuance, does not exceed the number of Warrant Shares then underlying this Warrant), (iii) shall have an issuance date, as indicated on the face of such new Warrant that is the same as the Issuance Date, and (iv) shall have the same rights and conditions as this Warrant.

(e) Warrant Register. If this Warrant is held in global form through DTC (or any successor depository), the Warrant Agent shall register this Warrant, upon records to be maintained by the Warrant Agent for that purpose (the "**Warrant Register**"), in the name of the record Holder hereof from time to time. If this Warrant is not held in global form through DTC (or any successor depository), the Company and the Warrant Agent 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.

8. NOTICES. Whenever notice is required to be given under this Warrant, including, without limitation, an Exercise Notice, unless otherwise provided herein, such notice shall be given in writing, (i) if delivered (a) from within the domestic United States, by first-class registered or certified airmail, or nationally recognized overnight express courier, postage prepaid, electronic mail or by facsimile or (b) from outside the United States, by International Federal Express, electronic mail or facsimile, and (ii) will be deemed given (A) if delivered by first-class registered or certified mail domestic, three (3) Business Days after so mailed, (B) if delivered by nationally recognized overnight carrier, one (1) Business Day after so mailed, (C) if delivered by International Federal Express, two (2) Business Days after so mailed and (D) at the time of transmission, if delivered by electronic mail to each of the email addresses specified in this Section 8 prior to 5:00 p.m. (New York time) on a Trading Day, (E) the next Trading Day after the date of transmission, if delivered by electronic mail to each of the email addresses specified in this Section 8 on a day that is not a Trading Day or later than 5:00 p.m. (New York time) on any Trading Day and (F) if delivered by facsimile, upon electronic confirmation of receipt of such facsimile, and will be delivered and addressed as follows:

(i) if to the Company, to:
Outlook Therapeutics, Inc.
7 Clarke Drive
Cranbury, NJ 08512
Attn: Lawrence A. Kenyon

(ii) if to the Holder, at such address or other contact information delivered by the Holder to Company or as is on the books and records of the Company.

The Company shall provide the Holder with prompt written notice of all actions taken pursuant to this Warrant, including in reasonable detail a description of such action and the reason therefor. Without limiting the generality of the foregoing, the Company will give written notice to the Holder (i) immediately upon any adjustment of the Exercise Price, setting forth in reasonable detail, and certifying, the calculation of such adjustment and (ii) at least fifteen (15) days prior to the date on which the Company closes its books or takes a record (A) with respect to any dividend or distribution upon the shares of Common Stock, (B) with respect to any grants, issuances or sales of any Options, Convertible Securities or rights to purchase stock, warrants, securities or other property to holders of shares of Common Stock or (C) for determining rights to vote with respect to any Fundamental Transaction, dissolution or liquidation; *provided* in each case that such information shall be made known to the public prior to or in conjunction with such notice being provided to the Holder. It is expressly understood and agreed that the time of exercise specified by the Holder in each Exercise Notice shall be definitive and may not be disputed or challenged by the Company.

9. AMENDMENT AND WAIVER. Except as otherwise provided herein, the provisions of this Warrant may be amended or waived and the Company may take any action herein prohibited, or omit to perform any act herein required to be performed by it, only if the Company has obtained the written consent of the Holder.

10. GOVERNING LAW; JURISDICTION; JURY TRIAL. This Warrant shall be governed by and construed and enforced in accordance with, and all questions concerning the construction, validity, interpretation and performance of this Warrant shall be governed by, the internal laws of the State of New York, without giving effect to any choice of law or conflict of law provision or rule (whether of the State of New York or any other jurisdictions) that would cause the application of the laws of any jurisdictions other than the State of New York. The Company 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, and hereby irrevocably waives, and agrees not to assert in any suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such suit, action or proceeding is brought in an inconvenient forum or that the venue of such suit, action or proceeding is improper. The Company hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof to the Company at the address set forth in Section 8(i) above or such other address as the Company subsequently delivers to the Holder 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 manner permitted by law. Nothing contained herein shall be deemed or operate to preclude the Holder from bringing suit or taking other legal action against the Company in any other jurisdiction to collect on the Company's obligations to the Holder, to realize on any collateral or any other security for such obligations, or to enforce a judgment or other court ruling in favor of the Holder. If either party shall commence an action, suit or proceeding to enforce any provisions of this Warrant, the prevailing party in such action, suit or proceeding shall be reimbursed by the other party for their reasonable attorneys' fees and other costs and expenses incurred with the investigation, preparation and prosecution of such action or proceeding. **THE COMPANY HEREBY IRREVOCABLY WAIVES ANY RIGHT IT MAY HAVE, AND AGREES NOT TO REQUEST, A JURY TRIAL FOR THE ADJUDICATION OF ANY DISPUTE HEREUNDER OR IN CONNECTION WITH OR ARISING OUT OF THIS WARRANT OR ANY TRANSACTION CONTEMPLATED HEREBY.**

11. DISPUTE RESOLUTION. In the case of a dispute as to the determination of the Exercise Price or the arithmetic calculation of the Warrant Shares, the Company shall submit the disputed determinations or arithmetic calculations via facsimile or electronic mail within two (2) Business Days of receipt of the Exercise Notice or other event giving rise to such dispute, as the case may be, to the Holder. If the Holder and the Company are unable to agree upon such determination or calculation of the Exercise Price or the Warrant Shares within three (3) Business Days of such disputed determination or arithmetic calculation being submitted to the Holder, then the Company shall, within two (2) Business Days submit via facsimile or electronic mail (a) the disputed determination of the Exercise Price to an independent, reputable investment bank selected by the Company and approved by the Holder or (b) the disputed arithmetic calculation of the Warrant Shares to the Company's independent, outside accountant. The Company shall cause at its expense the investment bank or the accountant, as the case may be, to perform the determinations or calculations and notify the Company and the Holder of the results no later than ten (10) Business Days from the time it receives the disputed determinations or calculations. Such investment bank's or accountant's determination or calculation, as the case may be, shall be binding upon all parties absent demonstrable error.

12. REMEDIES, OTHER OBLIGATIONS, BREACHES AND INJUNCTIVE RELIEF. The remedies provided in this Warrant shall be cumulative and in addition to all other remedies available under this Warrant and any other Transaction Documents, at law or in equity (including a decree of specific performance and/or other injunctive relief), and nothing herein shall limit the right of the Holder to pursue actual damages for any failure by the Company to comply with the terms of this Warrant. The Company acknowledges that a breach by it of its obligations hereunder will cause irreparable harm to the Holder and that the remedy at law for any such breach may be inadequate. The Company therefore agrees that, in the event of any such breach or threatened breach, the holder of this Warrant shall be entitled, in addition to all other available remedies, to an injunction restraining any breach, without the necessity of showing economic loss and without any bond or other security being required.

13. TRANSFER. This Warrant and the Warrant Shares may be offered for sale, sold, transferred, pledged or assigned without the consent of the Company.

14. SEVERABILITY; CONSTRUCTION; HEADINGS. If any provision of this Warrant is prohibited by law or otherwise determined to be invalid or unenforceable by a court of competent jurisdiction, the provision that would otherwise be prohibited, invalid or unenforceable shall be deemed amended to apply to the broadest extent that it would be valid and enforceable, and the invalidity or unenforceability of such provision shall not affect the validity of the remaining provisions of this Warrant so long as this Warrant as so modified continues to express, without material change, the original intentions of the parties as to the subject matter hereof and the prohibited nature, invalidity or unenforceability of the provision(s) in question does not substantially impair the respective expectations or reciprocal obligations of the parties or the practical realization of the benefits that would otherwise be conferred upon the parties. The parties will endeavor in good faith negotiations to replace the prohibited, invalid or unenforceable provision(s) with a valid provision(s), the effect of which comes as close as possible to that of the prohibited, invalid or unenforceable provision(s). This Warrant shall be deemed to be jointly drafted by the Company and the Holder and shall not be construed against any Person as the drafter hereof. The headings of this Warrant are for convenience of reference and shall not form part of, or affect the interpretation of, this Warrant.

15. **DISCLOSURE.** Upon receipt or delivery by the Company of any notice in accordance with the terms of this Warrant, unless the Company has in good faith determined that the matters relating to such notice do not constitute material, nonpublic information relating to the Company or its subsidiaries, the Company shall contemporaneously with any such receipt or delivery publicly disclose such material, nonpublic information on a Current Report on Form 8-K or otherwise. In the event that the Company believes that a notice contains material, nonpublic information relating to the Company or its subsidiaries, the Company so shall indicate to such Holder contemporaneously with delivery of such notice, and in the absence of any such indication, the Holder shall be allowed to presume that all matters relating to such notice do not constitute material, nonpublic information relating to the Company or its subsidiaries.

16. **WARRANT AGENT AGREEMENT.** If this Warrant is held in global form through DTC (or any successor depository), this Warrant is issued subject to the Warrant Agent Agreement. To the extent any provision of this Warrant conflicts with the express provisions of the Warrant Agent Agreement, the provisions of this Warrant shall govern and be controlling.

17. **CERTAIN DEFINITIONS.** For purposes of this Warrant, the following terms shall have the following meanings:

(a) **“Affiliate”** means, with respect to any Person, any other Person that directly or indirectly controls, is controlled by, or is under common control with, such Person, it being understood for purposes of this definition that “control” of a Person means the power directly or indirectly either to vote 10% or more of the stock having ordinary voting power for the election of directors of such Person or direct or cause the direction of the management and policies of such Person whether by contract or otherwise.

(b) **“Approved Stock Plan”** means any employee benefit plan that has been approved by a majority of the disinterested members of the Board of Directors of the Company, pursuant to which the Company’s securities may be issued to any employee, officer or director for services provided to the Company.

(c) **“Attribution Parties”** means, collectively, the following Persons and entities: (i) any investment vehicle, including, any funds, feeder funds or managed accounts, currently, or from time to time after the Subscription Date, directly or indirectly managed or advised by the Holder’s investment manager or any of its Affiliates or principals, (ii) any direct or indirect Affiliates of the Holder or any of the foregoing, (iii) any Person acting or who could be deemed to be acting as a Group together with the Holder or any of the foregoing and (iv) any other Persons whose beneficial ownership of the Company’s Common Stock would or could be aggregated with the Holder’s and the other Attribution Parties for purposes of Section 13(d) of the 1934 Act. For clarity, the purpose of the foregoing is to subject collectively the Holder and all other Attribution Parties to the Maximum Percentage.

(d) “**Bid Price**” means, for any security as of the particular time of determination, the bid price for such security on the Principal Market as reported by Bloomberg as of such time of determination, or, if the Principal Market is not the principal securities exchange or trading market for such security, the bid price of such security on the principal securities exchange or trading market where such security is listed or traded as reported by Bloomberg as of such time of determination, or if the foregoing does not apply, the bid price of such security in the over-the-counter market on the electronic bulletin board for such security as reported by Bloomberg as of such time of determination, or, if no bid price is reported for such security by Bloomberg as of such time of determination, the average of the bid prices of any market makers for such security as reported in the “pink sheets” by OTC Markets Group Inc. (formerly Pink Sheets LLC) as of such time of determination. If the Bid Price cannot be calculated for a security as of the particular time of determination on any of the foregoing bases, the Bid Price of such security as of such time of determination shall be the fair market value as mutually determined by the Company and the Holder. If the Company and the Holder are unable to agree upon the fair market value of such security, then such dispute shall be resolved in accordance with the procedures in Section 11. All such determinations shall be appropriately adjusted for any stock dividend, stock split, stock combination or other similar transaction during such period.

(e) “**Black Scholes Value**” means the value of this Warrant based on the Black-Scholes Option Pricing Model obtained from the “OV” function on Bloomberg determined as of the day immediately following the first public announcement of the applicable Change of Control, or, if the Change of Control is not publicly announced, the date the Change of Control is consummated, for pricing purposes and reflecting (i) a risk-free interest rate corresponding to the U.S. Treasury rate for a period equal to the remaining term of this Warrant as of such date of request, (ii) an expected volatility equal to 100%, (iii) the underlying price per share used in such calculation shall be the greater of (a) the highest Weighted Average Price during the five (5) Trading Days prior to the closing of the Change of Control and (b) 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 Change of Control, (iv) a zero cost of borrow and (v) a 360 day annualization factor.

(f) “**Bloomberg**” means Bloomberg Financial Markets.

(g) “**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.

(h) **“Change of Control”** means any Fundamental Transaction other than (i) any reorganization, recapitalization or reclassification of the Common Stock in which holders of the Company’s voting power immediately prior to such reorganization, recapitalization or reclassification continue after such reorganization, recapitalization or reclassification to hold publicly traded securities and, directly or indirectly, are, in all material respect, the holders of the voting power of the surviving entity (or entities with the authority or voting power to elect the members of the board of directors (or their equivalent if other than a corporation) of such entity or entities) after such reorganization, recapitalization or reclassification, (ii) pursuant to a migratory merger effected solely for the purpose of changing the jurisdiction of incorporation of the Company or (iii) a merger in connection with a bona fide acquisition by the Company of any Person in which (x) the gross consideration paid, directly or indirectly, by the Company in such acquisition is not greater than 40% of the Company’s market capitalization as calculated on the date of the consummation of such merger and (y) such merger does not contemplate a change to the identity of a majority of the board of directors of the Company. Notwithstanding anything herein to the contrary, any transaction or series of transaction that, directly or indirectly, results in the Company or the Successor Entity not having Common Stock or common stock, as applicable, registered under the 1934 Act and listed on an Eligible Market shall be deemed a Change of Control.

(i) **“Closing Bid Price”** and **“Closing Sale Price”** means, for any security as of any date, the last closing bid price and last closing trade price, respectively, for such security on the Principal Market, as reported by Bloomberg, or, if the Principal Market begins to operate on an extended hours basis and does not designate the closing bid price or the closing trade price, as the case may be, then the last bid price or the last trade price, respectively, of such security prior to 4:00:00 p.m., New York time, as reported by Bloomberg, or, if the Principal Market is not the principal securities exchange or trading market for such security, the last closing bid price or last trade price, respectively, of such security on the principal securities exchange or trading market where such security is listed or traded as reported by Bloomberg, or if the foregoing do not apply, the last closing bid price or last trade price, respectively, of such security in the over-the-counter market on the electronic bulletin board for such security as reported by Bloomberg, or, if no closing bid price or last trade price, respectively, is reported for such security by Bloomberg, the average of the bid prices, or the ask prices, respectively, of any market makers for such security as reported in the OTC Link or “pink sheets” by OTC Markets Group Inc. (formerly Pink OTC Markets Inc.). If the Closing Bid Price or the Closing Sale Price cannot be calculated for a security on a particular date on any of the foregoing bases, the Closing Bid Price or the Closing Sale Price, as the case may be, of such security on such date shall be the fair market value as mutually determined by the Company and the Holder. If the Company and the Holder are unable to agree upon the fair market value of such security, then such dispute shall be resolved pursuant to Section 11. All such determinations to be appropriately adjusted for any stock dividend, stock split, stock combination, reclassification or other similar transaction during the applicable calculation period.

(j) **“Common Stock”** means (i) the Company’s Common Stock, par value \$0.01 per share, and (ii) any capital stock into which such Common Stock shall have been changed or any capital stock resulting from a reclassification of such Common Stock.

(k) **“Convertible Securities”** means any stock or securities (other than Options) directly or indirectly convertible into or exercisable or exchangeable for shares of Common Stock.

(l) “**Eligible Market**” means The NASDAQ Capital Market, the NYSE American LLC, The NASDAQ Global Select Market, The NASDAQ Global Market or The New York Stock Exchange, Inc.

(m) “**Excluded Securities**” means any shares of Common Stock issued or issuable, or deemed issued or issuable pursuant to Section 2(a): (i) in connection with any Approved Stock Plan, including, for the avoidance of doubt, the issuance of equity awards (including Options or Convertible Securities) pursuant to any such Approved Stock Plan after the Subscription Date, (ii) upon exercise of the Warrants, (iii) upon conversion, exercise, exchange or settlement of any Options or Convertible Securities that are outstanding on the day immediately preceding the Subscription Date, (iv) upon the issuance of “payment-in-kind” dividends of additional shares of the Company’s Series A-1 Convertible Preferred Stock, as contemplated by the terms thereof, and (v) pursuant to acquisitions, divestitures, licenses, partnerships, collaborations or strategic transactions approved by the Board of Directors or a majority of the members of a committee of directors established for such purposes; *provided* that any such issuance shall only be to a Person (or to the equity holders of a Person) that is, itself or through its subsidiaries, an operating company or 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.

(n) “**Expiration Date**” means the date sixty (60) months after the Initial Exercisability Date or, if such date falls on a day other than a Business Day or on which trading does not take place on the Principal Market (a “**Holiday**”), the next day that is not a Holiday.

(o) “**Fundamental Transaction**” means (A) that the Company shall, directly or indirectly, including through subsidiaries, Affiliates or otherwise, in one or more related transactions, (i) consolidate or merge with or into (whether or not the Company is the surviving corporation) another Subject Entity, or (ii) sell, assign, transfer, convey or otherwise dispose of all or substantially all of the properties or assets of the Company or any of its “significant subsidiaries” (as defined in Rule 1-02 of Regulation S-X) to one or more Subject Entities, or (iii) make, or allow one or more Subject Entities to make, or allow the Company to be subject to or have its shares of Common Stock be subject to or party to one or more Subject Entities making, a purchase, tender or exchange offer that is accepted by the holders of at least either (x) 50% of the outstanding shares of Common Stock, (y) 50% of the outstanding shares of Common Stock calculated as if any shares of Common Stock held by all Subject Entities making or party to, or Affiliated with any Subject Entities making or party to, such purchase, tender or exchange offer were not outstanding; or (z) such number of shares of Common Stock such that all Subject Entities making or party to, or Affiliated with any Subject Entity making or party to, such purchase, tender or exchange offer, become collectively the beneficial owners (as defined in Rule 13d-3 under the 1934 Act) of at least 50% of the outstanding shares of Common Stock, or (iv) consummate a stock purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with one or more Subject Entities whereby all such Subject Entities, individually or in the aggregate, acquire, either (x) at least 50% of the outstanding shares of Common Stock, (y) at least 50% of the outstanding shares of Common Stock calculated as if any shares of Common Stock held by all the Subject Entities making or party to, or Affiliated with any Subject Entity making or party to, such stock purchase agreement or other business combination were not outstanding; or (z) such number of shares of Common Stock such that the Subject Entities become collectively the beneficial owners (as defined in Rule 13d-3 under the 1934 Act) of at least 50% of the outstanding shares of Common Stock, or (v) reorganize, recapitalize or reclassify its shares of Common Stock, (B) that the Company shall, directly or indirectly, including through subsidiaries, Affiliates or otherwise, in one or more related transactions, allow any Subject Entity individually or the Subject Entities in the aggregate to be or become the “beneficial owner” (as defined in Rule 13d-3 under the 1934 Act), directly or indirectly, whether through acquisition, purchase, assignment, conveyance, tender, tender offer, exchange, reduction in outstanding shares of Common Stock, merger, consolidation, business combination, reorganization, recapitalization, spin-off, scheme of arrangement, reorganization, recapitalization or reclassification or otherwise in any manner whatsoever, of either (x) at least 50% of the aggregate ordinary voting power represented by issued and outstanding shares of Common Stock, (y) at least 50% of the aggregate ordinary voting power represented by issued and outstanding shares of Common Stock not held by all such Subject Entities as of the Subscription Date calculated as if any shares of Common Stock held by all such Subject Entities were not outstanding, or (z) a percentage of the aggregate ordinary voting power represented by issued and outstanding shares of Common Stock or other equity securities of the Company sufficient to allow such Subject Entities to effect a statutory short form merger or other transaction requiring other stockholders of the Company to surrender their Common Stock without approval of the stockholders of the Company or (C) directly or indirectly, including through subsidiaries, Affiliates or otherwise, in one or more related transactions, the issuance of or the entering into any other instrument or transaction structured in a manner to circumvent, or that circumvents, the intent of this definition in which case this definition shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this definition to the extent necessary to correct this definition or any portion of this definition that may be defective or inconsistent with the intended treatment of such instrument or transaction.

(p) “**Group**” means a “group” as that term is used in Section 13(d) of the 1934 Act and as defined in Rule 13d-5 thereunder.

(q) “**Option Value**” means the value of an Option based on the Black-Scholes Option Pricing model obtained from the “OV” function on Bloomberg determined as of the day of the most recent Closing Sale Price of the Common Stock prior to the public announcement of the pricing of the applicable Option (or, if the pricing is not publicly announced, on the most recent Closing Sale Price of the Common Stock prior to the pricing of the applicable Option) and reflecting (i) a risk-free interest rate corresponding to the U.S. Treasury rate for a period equal to the remaining term of the applicable Option as of the applicable date of determination, (ii) an expected volatility equal to 50%, (iii) an underlying price per share equal to the most recent Closing Sale Price of the Common Stock prior to the public announcement of the pricing of the applicable Option (or, if the pricing is not publicly announced, on the most recent Closing Sale Price of the Common Stock prior to the pricing of the applicable Option), (iv) a zero cost of borrow and (v) a 360-day annualization factor.

(r) “**Options**” means any rights, warrants or options to subscribe for or purchase shares of Common Stock or Convertible Securities.

(s) “**Parent Entity**” of a Person means an entity that, directly or indirectly, controls the applicable Person, including such entity whose common stock or equivalent equity security is quoted or listed on an Eligible Market (or, if so elected by the Holder, any other market, exchange or quotation system), or, if there is more than one such Person or such entity, the Person or such entity designated by the Holder or in the absence of such designation, such Person or entity with the largest public market capitalization as of the date of consummation of the Fundamental Transaction or Change of Control.

(t) “**Person**” means an individual, a limited liability company, a partnership, a joint venture, a corporation, a trust, an unincorporated organization, any other entity and a government or any department or agency thereof.

(u) “**Principal Market**” means the principal securities exchange or securities market on which the Common Stock is then traded.

(v) “**Required Holders**” means the holders of the Warrants representing at least a majority of the shares of Common Stock underlying the Warrants then outstanding.

(w) “**Standard Settlement Period**” means the standard settlement period, expressed in a number of Trading Days, for the Company’s primary trading market or quotation system with respect to the Common Stock that is in effect on the date of receipt of an applicable Exercise Notice.

(x) “**Subject Entity**” means any Person, Persons or Group or any Affiliate or associate of any such Person, Persons or Group.

(y) “**Successor Entity**” means one or more Person or Persons (or, if so elected by the Holder, the Company or Parent Entity) formed by, resulting from or surviving any Fundamental Transaction or Change of Control or one or more Person or Persons (or, if so elected by the Holder, the Company or the Parent Entity) with which such Fundamental Transaction or Change of Control shall have been entered into.

(z) “**Trading Day**” means any day on which the Common Stock is traded on the Principal Market, or, if the Principal Market is not the principal trading market for the Common Stock, then on the principal securities exchange or securities market on which the Common Stock is then traded.

(aa) “**Transaction Documents**” means any agreement entered into by and between the Company and the Holder, as applicable.

(bb) **“Warrant Agent Agreement”** means that certain Warrant Agent Agreement, dated as of the Initial Exercise Date, between the Company and the Warrant Agent.

(cc) **“Warrant Agent”** means American Stock transfer & Trust Company, LLC, a New York limited liability trust company.

(dd) **“Weighted Average Price”** means, for any security as of any date, the dollar volume-weighted average price for such security on the Principal Market during the period beginning at 9:30:01 a.m., New York time (or such other time as the Principal Market publicly announces is the official open of trading), and ending at 4:00:00 p.m., New York time (or such other time as the Principal Market publicly announces is the official close of trading), as reported by Bloomberg through its “Volume at Price” function or, if the foregoing does not apply, the dollar volume-weighted average price of such security in the over-the-counter market on the electronic bulletin board for such security during the period beginning at 9:30:01 a.m., New York time (or such other time as such market publicly announces is the official open of trading), and ending at 4:00:00 p.m., New York time (or such other time as such market publicly announces is the official close of trading), as reported by Bloomberg, or, if no dollar volume-weighted average price is reported for such security by Bloomberg for such hours, the average of the highest Closing Bid Price and the lowest closing ask price of any of the market makers for such security as reported in the OTC Link or “pink sheets” by OTC Markets Group Inc. (formerly Pink OTC Markets Inc.). If the Weighted Average Price cannot be calculated for a security on a particular date on any of the foregoing bases, the Weighted Average Price of such security on such date shall be the fair market value as mutually determined by the Company and the Holder. If the Company and the Holder are unable to agree upon the fair market value of such security, then such dispute shall be resolved pursuant to Section 11 with the term “Weighted Average Price” being substituted for the term “Exercise Price.” All such determinations shall be appropriately adjusted for any stock dividend, stock split, stock combination, reclassification or other similar transaction during the applicable calculation period.

[Signature Page Follows]

IN WITNESS WHEREOF, the Company has caused this Five-Year Warrant to Purchase Common Stock to be duly executed as of the Issuance Date set out above.

OUTLOOK THERAPEUTICS, INC.

By: _____
Name:
Title:

**EXERCISE NOTICE
TO BE EXECUTED BY THE REGISTERED HOLDER TO EXERCISE THIS
FIVE-YEAR WARRANT TO PURCHASE COMMON STOCK**

OUTLOOK THERAPEUTICS, INC.

The undersigned holder hereby exercises the right to purchase _____ shares of Common Stock (“**Warrant Shares**”) of Outlook Therapeutics, Inc., a company organized under the laws of Delaware (the “**Company**”), evidenced by the attached Five-Year Warrant to Purchase Common Stock (the “**Warrant**”). Capitalized terms used herein and not otherwise defined shall have the respective meanings set forth in the Warrant.

1. Form of Exercise Price. The Holder intends that payment of the Exercise Price shall be made as:

_____ a “Cash Exercise” with respect to _____ Warrant Shares; and/or

_____ a “Cashless Exercise” with respect to _____ Warrant Shares.

2. Payment of Exercise Price. In the event that the holder has elected a Cash Exercise with respect to some or all of the Warrant Shares to be issued pursuant hereto, the holder shall pay the Aggregate Exercise Price in the sum of \$_____ to the Company in accordance with the terms of the Warrant.

3. Delivery of Warrant Shares. The Company shall deliver to the holder _____ Warrant Shares in accordance with the terms of the Warrant.

Date: _____, _____

Name of Registered Holder

By: _____
Name:
Title:

ACKNOWLEDGMENT

The Company hereby acknowledges this Exercise Notice and hereby directs American Stock Transfer & Trust Company, LLC to issue the above indicated number of shares of Common Stock on or prior to the applicable Share Delivery Date.

OUTLOOK THERAPEUTICS, INC.

By: _____
Name:
Title:

Exhibit D

[FORM OF CERTIFICATED 15-MONTH WARRANT]

OUTLOOK THERAPEUTICS, INC

15-MONTH WARRANT TO PURCHASE COMMON STOCK

Warrant No.: _____

Number of Shares of Common Stock: _____

Date of Issuance: April [●], 2019 (“**Issuance Date**”)

Outlook Therapeutics, Inc., a company organized under the laws of Delaware (the “**Company**”), hereby certifies that, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, [HOLDER], the registered holder hereof or its permitted assigns (the “**Holder**”), is entitled, subject to the terms set forth below, to purchase from the Company, at the Exercise Price (as defined below) then in effect, at any time or times on or after April [●], 2019 (the “**Initial Exercisability Date**”), but not after 11:59 p.m., New York time, on the Expiration Date, (as defined below), _____ (_____) fully paid non-assessable shares of Common Stock (as defined below), subject to adjustment as provided herein (the “**Warrant Shares**”). Except as otherwise defined herein, capitalized terms in this Warrant to Purchase Common Stock (including any Warrants to Purchase Common Stock issued in exchange, transfer or replacement hereof, this “**Warrant**”), shall have the meanings set forth in Section 16. This Warrant is one of the 15-Month Warrants to Purchase Common Stock (the “**Warrants**”) issued pursuant to (i) that certain Underwriting Agreement, dated as of April [●], 2019 (the “**Subscription Date**”) by and between the Company and Oppenheimer & Co. Inc. as representative of the several underwriters named therein, (ii) the Company’s Registration Statement on Form S-1 (File number 333-229761) (the “**Registration Statement**”). This Warrant shall initially be issued and maintained in the form of a security held in book-entry form and the Depository Trust Company or its nominee (“**DTC**”) shall initially be the sole registered holder of this Warrant, subject to a Holder’s right to elect to receive a Warrant in certificated form pursuant to the terms of the Warrant Agent Agreement, in which case this sentence shall not apply.

1. EXERCISE OF WARRANT.

(a) Mechanics of Exercise. Subject to the terms and conditions hereof (including, without limitation, the limitations set forth in Section 1(f)), this Warrant may be exercised by the Holder at any time or times on or after the Initial Exercisability Date, in whole or in part, by delivery (whether via facsimile, electronic mail or otherwise) of a written notice, in the form attached hereto as Exhibit A (the “**Exercise Notice**”), of the Holder's election to exercise this Warrant. Within one (1) Trading Day following the delivery of the Exercise Notice, the Holder shall make payment to the Company of an amount equal to the Exercise Price in effect on the date of such exercise multiplied by the number of Warrant Shares as to which this Warrant is being exercised (the “**Aggregate Exercise Price**”) in cash by wire transfer of immediately available funds or, if the provisions of Section 1(d) are applicable, by notifying the Company that this Warrant is being exercised pursuant to a Cashless Exercise (as defined in Section 1(d)). The Holder shall not be required to deliver the original Warrant in order to effect an exercise hereunder, nor shall any ink-original signature or medallion guarantee (or other type of guarantee or notarization) with respect to any Exercise Notice be required. Execution and delivery of the Exercise Notice with respect to less than all of the Warrant Shares shall have the same effect as cancellation of the original Warrant and issuance of a new Warrant evidencing the right to purchase the remaining number of Warrant Shares and 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 three (3) Trading Days of the date on which the final Exercise Notice is delivered to the Company. On or before the first (1st) Trading Day following the date on which the Holder has delivered the applicable Exercise Notice, the Company shall transmit by facsimile or electronic mail an acknowledgment of confirmation of receipt of the Exercise Notice, in the form attached to the Exercise Notice, to the Holder and the Company's transfer agent (the “**Transfer Agent**”). So long as the Holder delivers the Aggregate Exercise Price (or notice of a Cashless Exercise, if applicable) on or prior to the first (1st) Trading Day following the date on which the Exercise Notice has been delivered to the Company, then on or prior to the earlier of (i) the second (2nd) Trading Day and (ii) the number of Trading Days comprising the Standard Settlement Period, in each case following the date on which the Exercise Notice has been delivered to the Company, or, if the Holder does not deliver the Aggregate Exercise Price (or notice of a Cashless Exercise, if applicable) on or prior to the first (1st) Trading Day following the date on which the Exercise Notice has been delivered to the Company, then on or prior to the first (1st) Trading Day following the date on which the Aggregate Exercise Price (or notice of a Cashless Exercise) is delivered (such earlier date, or if later, the earliest day on which the Company is required to deliver Warrant Shares pursuant to this Section 1(a), the “**Share Delivery Date**”), the Company shall (X) *provided* that the Transfer Agent is participating in The Depository Trust Company (“**DTC**”) Fast Automated Securities Transfer Program, credit such aggregate number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the Holder's or its designee's balance account with DTC through its Deposit / Withdrawal At Custodian system, or (Y) if the Transfer Agent is not participating in the DTC Fast Automated Securities Transfer Program, issue and dispatch by overnight courier to the address or e-mail address as specified in the Exercise Notice, evidence of credit of book-entry shares, registered 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. If the Company fails for any reason to deliver to such registered holder or Participant, as the case may be, the Warrant Shares subject to an exercise notice by the Share Delivery Date, the Company shall pay to the registered 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 Weighted Average Price of the Common Stock on the date of the applicable exercise notice), \$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 Share Delivery Date until such Warrant Shares are delivered or the registered holder rescinds such exercise. The Company shall be responsible for all fees and expenses of the Transfer Agent and all fees and expenses with respect to the issuance of Warrant Shares via DTC, if any, including without limitation for same day processing. Upon delivery of the Exercise Notice, the Holder shall be deemed for all corporate purposes to have become the holder of record and beneficial owner of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date such Warrant Shares are credited to the Holder's DTC account or the date of delivery of the certificates evidencing such Warrant Shares, as the case may be. If this Warrant is physically delivered to the Company in connection with any exercise pursuant to this Section 1(a) and the number of Warrant Shares represented by this Warrant submitted for exercise is greater than the number of Warrant Shares being acquired upon an exercise, then the Company shall as soon as practicable and in no event later than three (3) Trading Days after any exercise and at its own expense, issue and deliver to the Holder (or its designee) a new Warrant (in accordance with Section 7(d)) representing the right to purchase the number of Warrant Shares issuable immediately prior to such exercise under this Warrant, less the number of Warrant Shares with respect to which this Warrant is exercised. No fractional Warrant Shares are to be issued upon the exercise of this Warrant, but rather the Company shall pay a cash adjustment equal to such fraction multiplied by the Exercise Price. The Company shall pay any and all transfer, stamp, issuance and similar taxes, costs and expenses (including, without limitation, fees and expenses of the Transfer Agent) that may be payable with respect to the issuance and delivery of Warrant Shares upon exercise of this Warrant. The Company's obligations to issue and deliver Warrant Shares in accordance with the terms and subject to the conditions hereof are absolute and unconditional, irrespective of any action or inaction by the Holder to enforce the same, any waiver or consent with respect to any provision hereof, the recovery of any judgment against any Person or any action to enforce the same, or any setoff, counterclaim, recoupment, limitation or termination; provided, however, that the Company shall not be required to deliver Warrant Shares with respect to an exercise prior to the Holder's delivery of the Aggregate Exercise Price (or notice of a Cashless Exercise) with respect to such exercise.

(b) Exercise Price. For purposes of this Warrant, “**Exercise Price**” means \$[●] per share, subject to adjustment as provided herein.

(c) Company's Failure to Timely Deliver Securities. If either (I) the Company shall fail for any reason or for no reason on or prior to the applicable Share Delivery Date, if (x) the Transfer Agent is not participating in the DTC Fast Automated Securities Transfer Program, to issue to the Holder by book-entry credit the number of shares of Common Stock to which the Holder is entitled and register such Common Stock on the Company's share register or (y) the Transfer Agent is participating in the DTC Fast Automated Securities Transfer Program, to credit the Holder's balance account with DTC, for such number of shares of Common Stock to which the Holder is entitled upon the Holder's exercise of this Warrant or (II) a registration statement (which may be the Registration Statement) covering the issuance or resale of the Warrant Shares that are the subject of the Exercise Notice (the “**Exercise Notice Warrant Shares**”) is not available for the issuance or resale, as applicable, of such Exercise Notice Warrant Shares and (x) the Company fails to promptly, but in no event later than one (1) Business Day after such registration statement becomes unavailable, to so notify the Holder and (y) the Company is unable to deliver the Exercise Notice Warrant Shares electronically without any restrictive legend by crediting such aggregate number of Exercise Notice Warrant Shares to the Holder's or its designee's balance account with DTC through its Deposit / Withdrawal At Custodian system (the event described in the immediately foregoing clause (II) is hereinafter referred to as a “**Notice Failure**” and, together with the event described in clause (I) above, an “**Exercise Failure**”), then, in addition to all other remedies available to the Holder, if on or prior to the applicable Share Delivery Date either (I) if the Transfer Agent is not participating in the DTC Fast Automated Securities Transfer Program, the Company shall fail to issue by book-entry credit to the Holder and register such shares of Common Stock on the Company's share register or, if the Transfer Agent is participating in the DTC Fast Automated Securities Transfer Program, credit the Holder's balance account with DTC for the number of shares of Common Stock to which the Holder is entitled upon the Holder's exercise hereunder or pursuant to the Company's obligation pursuant to clause (ii) below or (II) a Notice Failure occurs, and if on or after such Trading Day 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 that the Holder anticipated receiving upon such exercise from the Company (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 and other out-of-pocket expenses, 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 credit by book entry the Warrant Shares (or to electronically deliver such Warrant Shares) upon the exercise of this Warrant as required pursuant to the terms hereof. While this Warrant is outstanding, the Company shall cause its transfer agent to participate in the DTC Fast Automated Securities Transfer Program. In addition to the foregoing rights, (i) if the Company fails to deliver the applicable number of Warrant Shares upon an exercise pursuant to Section 1 by the applicable Share Delivery Date, then the Holder shall have the right to rescind such exercise in whole or in part and retain and/or have the Company return, as the case may be, any portion of this Warrant that has not been exercised pursuant to such Exercise Notice; *provided* that the rescission of an exercise shall not affect the Company's obligation to make any payments that have accrued prior to the date of such notice pursuant to this Section 1(c) or otherwise, and (ii) if a registration statement (which may be the Registration Statement) covering the issuance or resale of the Warrant Shares that are subject to an Exercise Notice is not available for the issuance or resale, as applicable, of such Exercise Notice Warrant Shares and the Holder has submitted an Exercise Notice prior to receiving notice of the non-availability of such registration statement and the Company has not already delivered the Warrant Shares underlying such Exercise Notice electronically without any restrictive legend by crediting such aggregate number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the Holder's or its designee's balance account with DTC through its Deposit / Withdrawal At Custodian system, the Holder shall have the option, by delivery of notice to the Company, to (x) rescind such Exercise Notice in whole or in part and retain or have returned, as the case may be, any portion of this Warrant that has not been exercised pursuant to such Exercise Notice; *provided* that the rescission of an Exercise Notice shall not affect the Company's obligation to make any payments that have accrued prior to the date of such notice pursuant to this Section 1(c) or otherwise, and/or (y) switch some or all of such Exercise Notice from a cash exercise to a Cashless Exercise.

(d) Cashless Exercise. A Cashless Exercise (as defined below) may occur (i) in whole or in part for a whole number of Warrant Shares after May [●]¹, 2019 (the “**Cashless Date**”), if the Weighted Average Price of the Common Stock on any single Trading Day on or after the Cashless Date and prior to the date of such Cashless Exercise fails to exceed the Exercise Price in effect as of the date hereof (subject to adjustment for any stock splits, stock dividends, stock combinations, recapitalizations and similar events) in which event, in lieu of the formula below, the aggregate number of Warrant Shares issuable in such cashless exercise pursuant to any given Exercise Notice electing to effect a Cashless Exercise shall equal the product of (x) the aggregate number of Warrant Shares for which the Warrants are exercised as if such exercise were by means of a cash exercise rather than a Cashless Exercise and (y) 0.50; and (ii) if a registration statement (which may be the Registration Statement) covering the issuance or resale of the Exercise Notice Warrant Shares is not available for the issuance or resale, as applicable, of such Exercise Notice Warrant Shares, the Holder may, in its sole discretion, exercise this Warrant in whole or in part and, in lieu of making the cash payment otherwise contemplated to be made to the Company upon such exercise in payment of the Aggregate Exercise Price, elect instead to receive upon such exercise the “Net Number” of shares of Common Stock determined according to the following formula (a “**Cashless Exercise**”):

$$\text{Net Number} = \frac{(A \times B) - (A \times C)}{B}$$

For purposes of the foregoing formula:

A= the total number of shares with respect to which this Warrant is then being exercised.

B= as applicable: (i) the Closing Sale Price of the Common Stock on the Trading Day immediately preceding the date of the applicable Exercise Notice if such Exercise Notice is (1) both executed and delivered pursuant to Section 1(a) hereof on a day that is not a Trading Day or (2) both executed and delivered pursuant to Section 1(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) at the option of the Holder, either (y) the Weighted Average Price on the Trading Day immediately preceding the date of the applicable Notice of Exercise or (z) the Bid Price of the Common Stock as of the time of the Holder’s execution of the applicable Exercise Notice if such Exercise Notice is executed during “regular trading hours” on a Trading Day and is delivered within two (2) hours thereafter (including until two (2) hours after the close of “regular trading hours” on a Trading Day) pursuant to Section 1(a) hereof or (iii) the Closing Sale Price of the Common Stock on the date of the applicable Exercise Notice if the date of such Exercise Notice is a Trading Day and such Exercise Notice is both executed and delivered pursuant to Section 1(a) hereof after the close of “regular trading hours” on such Trading Day.

¹ One month after the Issuance Date.

C= the Exercise Price then in effect for the applicable Warrant Shares at the time of such exercise.

The Company agrees to make all calculations related to a Cashless Exercise and will provide the Warrant Agent with issuance instructions.

If Warrant Shares are issued in such a cashless exercise, the Company acknowledges and agrees that in accordance with Section 3(a)(9) of the 1933 Act, the Warrant Shares shall take on the registered characteristics of the Warrants being exercised, and the holding period of the Warrants being exercised may be tacked on to the holding period of the Warrant Shares. The Company agrees not to take any position contrary to this Section 1(d). Without limiting the rights of a Holder to receive Warrant Shares on a “cashless exercise,” and to receive the cash payments contemplated pursuant to Sections 1(a), 1(c) and 4(b), in no event will the Company be required to pay to the Holder any cash or other consideration or otherwise net cash settle a Warrant exercise.

(e) Disputes. In the case of a dispute as to the determination of the Exercise Price or the arithmetic calculation of the Warrant Shares, the Company shall promptly issue to the Holder the number of Warrant Shares that are not disputed and resolve such dispute in accordance with Section 11.

(f) Beneficial Ownership. Notwithstanding anything to the contrary contained herein, the Company shall not effect the exercise of any portion of this Warrant, and the Holder shall not have the right to exercise any portion of this Warrant, pursuant to the terms and conditions of this Warrant and any such exercise shall be null and void and treated as if never made, to the extent that after giving effect to such exercise, the Holder together with the other Attribution Parties collectively would beneficially own in excess of [4.99%][9.99%] (the “**Maximum Percentage**”) of the number of shares of Common Stock outstanding immediately after giving effect to such exercise. For purposes of the foregoing sentence, the aggregate number of shares of Common Stock beneficially owned by the Holder and the other Attribution Parties shall include the number of shares of Common Stock held by the Holder and all other Attribution Parties plus the number of shares of Common Stock issuable upon exercise of this Warrant with respect to which the determination of such sentence is being made, but shall exclude the number of shares of Common Stock that would be issuable upon (A) exercise of the remaining, unexercised portion of this Warrant beneficially owned by the Holder or any of the other Attribution Parties and (B) exercise or conversion of the unexercised or unconverted portion of any other securities of the Company (including, without limitation, any convertible notes or convertible preferred stock or warrants, including the other Warrants) beneficially owned by the Holder or any other Attribution Party subject to a limitation on conversion or exercise analogous to the limitation contained in this Section 1(f). For purposes of this Section 1(f), beneficial ownership shall be calculated in accordance with Section 13(d) of the Securities Exchange Act of 1934, as amended (the “**1934 Act**”). For purposes of this Warrant, in determining the number of outstanding shares of Common Stock the Holder may acquire upon the exercise of this Warrant without exceeding the Maximum Percentage, the Holder may rely on the number of outstanding shares of Common Stock as reflected in (x) the Company’s most recent Annual Report on Form 10-K, Quarterly Report on Form 10-Q and Current Reports on Form 8-K or other public filing with the Securities and Exchange Commission (the “**SEC**”), as the case may be, (y) a more recent public announcement by the Company or (z) any other written notice by the Company or the Transfer Agent setting forth the number of shares of Common Stock outstanding (the “**Reported Outstanding Share Number**”). If the Company receives an Exercise Notice from the Holder at a time when the actual number of outstanding shares of Common Stock is less than the Reported Outstanding Share Number, the Company shall (i) notify the Holder in writing of the number of shares of Common Stock then outstanding and, to the extent that such Exercise Notice would otherwise cause the Holder’s beneficial ownership, as determined pursuant to this Section 1(f), to exceed the Maximum Percentage, the Holder must notify the Company of a reduced number of Warrant Shares to be purchased pursuant to such Exercise Notice (the number of shares by which such purchase is reduced, the “**Reduction Shares**”) and (ii) as soon as reasonably practicable, the Company shall return to the Holder any exercise price paid by the Holder for the Reduction Shares. For any reason at any time, upon the written or oral request of the Holder, the Company shall within one (1) Business Day confirm orally and in writing or by electronic mail 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 and any other Attribution Party since the date as of which the Reported Outstanding Share Number was reported. In the event that the issuance of Common Stock to the Holder upon exercise of this Warrant results in the Holder and the other Attribution Parties being deemed to beneficially own, in the aggregate, more than the Maximum Percentage of the number of outstanding shares of Common Stock (as determined under Section 13(d) of the 1934 Act), the number of shares so issued by which the Holder’s and the other Attribution Parties’ aggregate beneficial ownership exceeds the Maximum Percentage (the “**Excess Shares**”) shall be deemed null and void and shall be cancelled ab initio, and the Holder shall not have the power to vote or to transfer the Excess Shares. As soon as reasonably practicable after the issuance of the Excess Shares has been deemed null and void, the Company shall return to the Holder the exercise price paid by the Holder for the Excess Shares. Upon delivery of a written notice to the Company, the Holder may from time to time increase or decrease the Maximum Percentage to any other percentage not in excess of 9.99% as specified in such notice; *provided* that (i) any such increase in the Maximum Percentage will not be effective until the sixty-first (61st) day after such notice is delivered to the Company and (ii) any such increase or decrease will apply only to the Holder and the other Attribution Parties and not to any other holder of Warrants that is not an Attribution Party of the Holder. For purposes of clarity, the shares of Common Stock issuable pursuant to the terms of this Warrant in excess of the Maximum Percentage shall not be deemed to be beneficially owned by the Holder for any purpose including for purposes of Section 13(d) or Rule 16a-1(a)(1) of the 1934 Act. No prior inability to exercise this Warrant pursuant to this paragraph shall have any effect on the applicability of the provisions of this paragraph with respect to any subsequent determination of exercisability. The provisions of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 1(f) to the extent necessary to correct this paragraph or any portion of this paragraph that may be defective or inconsistent with the intended beneficial ownership limitation contained in this Section 1(f) or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitation contained in this paragraph may not be waived and shall apply to a successor holder of this Warrant.

(g) Required Reserve Amount. So long as this Warrant remains outstanding, the Company shall at all times keep reserved for issuance under this Warrant a number of shares of Common Stock at least equal to 100% of the maximum number of shares of Common Stock as shall be necessary to satisfy the Company's obligation to issue shares of Common Stock under the Warrants then outstanding (without regard to any limitations on exercise) (the "**Required Reserve Amount**"); *provided* that at no time shall the number of shares of Common Stock reserved pursuant to this Section 1(g) be reduced other than in connection with any exercise of Warrants or such other event covered by Section 2(c) below. The Required Reserve Amount (including, without limitation, each increase in the number of shares so reserved) shall be allocated pro rata among the holders of the Warrants based on the number of shares of Common Stock issuable upon exercise of Warrants held by each holder thereof on the Issuance Date (without regard to any limitations on exercise) (the "**Authorized Share Allocation**"). In the event that a holder shall sell or otherwise transfer any of such holder's Warrants, each transferee shall be allocated a pro rata portion of such holder's Authorized Share Allocation. Any shares of Common Stock reserved and allocated to any Person that ceases to hold any Warrants shall be allocated to the remaining holders of Warrants, pro rata based on the number of shares of Common Stock issuable upon exercise of the Warrants then held by such holders thereof (without regard to any limitations on exercise).

(h) Insufficient Authorized Shares. If at any time while this Warrant remains outstanding the Company does not have a sufficient number of authorized and unreserved shares of Common Stock to satisfy its obligation to reserve for issuance the Required Reserve Amount (an "**Authorized Share Failure**"), then the Company shall promptly take all action reasonably necessary to increase the Company's authorized shares of Common Stock to an amount sufficient to allow the Company to reserve the Required Reserve Amount for this Warrant then outstanding. Without limiting the generality of the foregoing sentence, as soon as practicable after the date of the occurrence of an Authorized Share Failure, but in no event later than ninety (90) days after the occurrence of such Authorized Share Failure, the Company shall hold a meeting of its stockholders for the approval of an increase in the number of authorized shares of Common Stock. In connection with such meeting, the Company shall provide each stockholder with a proxy statement and shall use its reasonable best efforts to solicit its stockholders' approval of such increase in authorized shares of Common Stock and to cause its board of directors to recommend to the stockholders that they approve such proposal. Notwithstanding the foregoing, if any such time of an Authorized Share Failure, the Company is able to obtain the written consent of a majority of the shares of its issued and outstanding shares of Common Stock to approve the increase in the number of authorized shares of Common Stock, the Company may satisfy this obligation by obtaining such consent and submitting for filing with the SEC an Information Statement on Schedule 14C.

2. ADJUSTMENT OF EXERCISE PRICE AND NUMBER OF WARRANT SHARES. The Exercise Price and the number of Warrant Shares shall be adjusted from time to time as follows:

(a) Adjustment Upon Issuance of Common Stock. If and whenever on or after the Subscription Date, the Company issues or sells, or in accordance with this Section 2 is deemed to have issued or sold, any shares of Common Stock (including the issuance or sale of shares of Common Stock owned or held by or for the account of the Company, but excluding shares of Common Stock deemed to have been issued or sold by the Company in connection with any Excluded Securities) for a consideration per share (the “**New Issuance Price**”) less than a price (the “**Applicable Price**”) equal to the Exercise Price in effect immediately prior to such issuance or sale or deemed issuance or sale (the foregoing a “**Dilutive Issuance**”), then immediately after such Dilutive Issuance, the Exercise Price then in effect shall be reduced to an amount equal to the New Issuance Price. For purposes of determining the adjusted Exercise Price under this Section 2(a), the following shall be applicable:

(i) Issuance of Options. If the Company in any manner grants or sells any Options and the lowest price per share for which one share of Common Stock is issuable upon the exercise of any such Options or upon conversion, exercise or exchange of any Convertible Securities issuable upon exercise of any such Options is less than the Applicable Price, then such share of Common Stock shall be deemed to be outstanding and to have been issued and sold by the Company at the time of the granting or sale of such Options for such price per share. For purposes of this Section 2(a)(i), the “lowest price per share for which one share of Common Stock is issuable upon the exercise of any such Options or upon conversion, exercise or exchange of any Convertible Securities issuable upon exercise of any such Options” shall be equal to the sum of the lowest amounts of consideration (if any) received or receivable by the Company with respect to any one share of Common Stock upon the granting or sale of the Options, upon exercise of the Options and upon conversion, exercise or exchange of any Convertible Security issuable upon exercise of such Options less any consideration paid or payable by the Company with respect to such one share of Common Stock upon the granting or sale of such Options, upon exercise of such Options and upon conversion exercise or exchange of any Convertible Security issuable upon exercise of such Options. No further adjustment of the Exercise Price shall be made upon the actual issuance of such shares of Common Stock or of such Convertible Securities upon the exercise of such Options or upon the actual issuance of such shares of Common Stock upon conversion, exercise or exchange of such Convertible Securities.

(ii) Issuance of Convertible Securities. If the Company in any manner issues or sells any Convertible Securities and the lowest price per share for which one share of Common Stock is issuable upon the conversion, exercise or exchange thereof is less than the Applicable Price, then such share of Common Stock shall be deemed to be outstanding and to have been issued and sold by the Company at the time of the issuance or sale of such Convertible Securities for such price per share. For the purposes of this Section 2(a)(ii), the “lowest price per share for which one share of Common Stock is issuable upon the conversion, exercise or exchange thereof” shall be equal to the sum of the lowest amounts of consideration (if any) received or receivable by the Company with respect to any one share of Common Stock upon the issuance or sale of the Convertible Security and upon conversion, exercise or exchange of such Convertible Security less any consideration paid or payable by the Company with respect to such one share of Common Stock upon the issuance or sale of such Convertible Security and upon conversion, exercise or exchange of such Convertible Security. No further adjustment of the Exercise Price shall be made upon the actual issuance of such shares of Common Stock upon conversion, exercise or exchange of such Convertible Securities, and if any such issuance or sale of such Convertible Securities is made upon exercise of any Options for which adjustment of the Exercise Price has been or is to be made pursuant to other provisions of this Section 2(a), no further adjustment of the Exercise Price shall be made by reason of such issuance or sale.

(iii) Change in Option Price or Rate of Conversion. If the purchase price provided for in any Options, the additional consideration, if any, payable upon the issue, conversion, exercise or exchange of any Convertible Securities, or the rate at which any Convertible Securities are convertible into or exercisable or exchangeable for shares of Common Stock increases or decreases at any time pursuant to the terms of such Options or Convertible Securities, the Exercise Price in effect at the time of such increase or decrease shall be adjusted to the Exercise Price, that would have been in effect at such time had such Options or Convertible Securities provided for such increased or decreased purchase price, additional consideration or increased or decreased conversion rate, as the case may be, at the time initially granted, issued or sold. For purposes of this Section 2(a)(iii), if the terms of any Option or Convertible Security that was outstanding as of the Subscription Date are increased or decreased in the manner described in the immediately preceding sentence, then such Option or Convertible Security and the shares of Common Stock deemed issuable upon exercise, conversion or exchange thereof shall be deemed to have been issued as of the date of such increase or decrease. No adjustment pursuant to this Section 2(a) shall be made if such adjustment would result in an increase of the Exercise Price then in effect. For the avoidance of doubt, no adjustment in the Exercise Price shall be made pursuant to this Section 2(a)(iii) as a result of any modification of the terms of any Options or Convertible Securities after their date of issuance.

(iv) Calculation of Consideration Received. In case any Option is issued in connection with the issuance or sale of other securities of the Company, together comprising one integrated transaction, (x) the Options will be deemed to have been issued for the Option Value of such Options and (y) the other securities issued or sold in such integrated transaction shall be deemed to have been issued or sold for the difference of (I) the aggregate consideration received by the Company less any consideration paid or payable by the Company pursuant to the terms of such other securities of the Company, less (II) the Option Value of such Options; *provided*, that if the value determined pursuant to clause (y) above would result in a value less than the par value of the Common Stock, then the other securities issued or sold in such integrated transaction shall be deemed to have been issued or sold for the par value of the Common Stock. If any shares of Common Stock, Options or Convertible Securities are issued or sold or deemed to have been issued or sold for cash, the consideration received therefor will be deemed to be the net amount received by the Company therefor. If any shares of Common Stock, Options or Convertible Securities are issued or sold for a consideration other than cash, the amount of such consideration received by the Company will be the fair value of such consideration, except where such consideration consists of publicly traded securities, in which case the amount of consideration received by the Company will be the Closing Sale Price of such publicly traded securities on the date of receipt of such publicly traded securities. If any shares of Common Stock, Options or Convertible Securities are issued to the owners of the non-surviving entity in connection with any merger in which the Company is the surviving entity, the amount of consideration therefor will be deemed to be the fair value of such portion of the net assets and business of the non-surviving entity as is attributable to such shares of Common Stock, Options or Convertible Securities, as the case may be. The fair value of any consideration other than cash or publicly traded securities will be determined jointly by the Company and the Required Holders. If such parties are unable to reach agreement within ten (10) days after the occurrence of an event requiring valuation (the “**Valuation Event**”), the fair value of such consideration will be determined within five (5) Business Days after the tenth (10th) day following the Valuation Event by an independent, reputable appraiser jointly selected by the Company and the Required Holders. The determination of such appraiser shall be final and binding upon all parties absent manifest error and the fees and expenses of such appraiser shall be borne by the Company.

(v) Record Date. If the Company takes a record of the holders of Common Stock for the purpose of entitling them (A) to receive a dividend or other distribution payable in shares of Common Stock, Options or in Convertible Securities or (B) to subscribe for or purchase shares of Common Stock, Options or Convertible Securities, then such record date will be deemed to be the date of the issuance or sale of the shares of Common Stock deemed to have been issued or sold upon the declaration of such dividend or the making of such other distribution or the date of the granting of such right of subscription or purchase, as the case may be.

(vi) No Modification. So long as any of the Warrants are outstanding, the Company shall not amend, modify or change the terms of any Options or Convertible Securities (whether issued on, prior or after the Subscription Date) to lower the exercise price or conversion price thereof.

(b) Voluntary Adjustment by Company. The Company may at any time during the term of this Warrant 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.

(c) Adjustment upon Subdivision or Combination of Common Stock. If the Company at any time on or after the Subscription Date subdivides (by any stock split, stock dividend, recapitalization or otherwise) one or more classes of its outstanding shares of Common Stock into a greater number of shares, the Exercise Price in effect immediately prior to such subdivision will be proportionately reduced and the number of Warrant Shares will be proportionately increased. If the Company at any time on or after the Subscription Date combines (by combination, reverse stock split or otherwise) one or more classes of its outstanding shares of Common Stock into a smaller number of shares, the Exercise Price in effect immediately prior to such combination will be proportionately increased and the number of Warrant Shares will be proportionately decreased. Any adjustment under this Section 2(c) shall become effective at the close of business on the date the subdivision or combination becomes effective.

3. RIGHTS UPON DISTRIBUTION OF ASSETS. In addition to any adjustments pursuant to Section 2 above, if, on or after the Subscription Date and on or prior to the Expiration Date, 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, options, evidence of indebtedness or any other assets 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 or restrictions on exercise of this Warrant, including without limitation, the Maximum Percentage) immediately before the date on 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*, that to the extent that the Holder's right to participate in any such Distribution would result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, then the Holder shall not be entitled to participate in such Distribution to such extent (and shall not be entitled to beneficial ownership of such shares of Common Stock as a result of such Distribution (and beneficial ownership) to such extent) and the portion of such Distribution shall be held in abeyance for the benefit of the Holder until such time or times as its right thereto would not result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, at which time or times the Holder shall be granted such Distribution (and any Distributions declared or made on such initial Distribution or on any subsequent Distribution held similarly in abeyance) to the same extent as if there had been no such limitation).

4. PURCHASE RIGHTS; FUNDAMENTAL TRANSACTIONS.

(a) Purchase Rights. In addition to any adjustments pursuant to Section 2 above, if at any time on or after the Subscription Date and on or prior to the Expiration Date the Company grants, issues or sells any Options, Convertible Securities or rights to purchase stock, warrants, securities or other property pro rata to the record holders of any class 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 that 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 or restrictions on exercise of this Warrant, including without limitation, the Maximum Percentage) 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 Common Stock are to be determined for the grant, issuance or sale of such Purchase Rights (*provided, however*, that to the extent that the Holder's right to participate in any such Purchase Right would result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, then the Holder shall not be entitled to participate in such Purchase Right to such extent (and shall not be entitled to beneficial ownership of such Common Stock as a result of such Purchase Right (and beneficial ownership) to such extent) and such Purchase Right to such extent shall be held in abeyance for the benefit of the Holder until such time or times as its right thereto would not result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, at which time or times the Holder shall be granted such right (and any Purchase Right granted, issued or sold on such initial Purchase Right or on any subsequent Purchase Right to be held similarly in abeyance) to the same extent as if there had been no such limitation).

(b) Fundamental Transaction. The Company shall not enter into or be party to a Fundamental Transaction unless the Successor Entity assumes in writing all of the obligations of the Company under this Warrant in accordance with the provisions of this Section 4(b), including agreements to 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, including, without limitation, that is exercisable for a corresponding number of shares of capital stock 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 that 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 adjustments to the 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). Upon the consummation of each Fundamental Transaction, the Successor Entity shall succeed to, and be substituted for the Company (so that from and after the date of the applicable Fundamental Transaction, the provisions of this Warrant and the other Transaction Documents referring to the “Company” shall refer instead to the Successor Entity), and may exercise every right and power of the Company and shall assume all of the obligations of the Company under this Warrant with the same effect as if such Successor Entity had been named as the Company herein. Upon consummation of each Fundamental Transaction, the Successor Entity shall deliver to the Holder confirmation that there shall be issued upon exercise of this Warrant at any time after the consummation of the applicable Fundamental Transaction, in lieu of the shares of Common Stock (or other securities, cash, assets or other property (except such items still issuable under Sections 3 and 4(a) above, which shall continue to be receivable thereafter)) issuable upon the exercise of this Warrant prior to the applicable Fundamental Transaction, such shares of common stock (or its equivalent) of the Successor Entity (including its Parent Entity) that the Holder would have been entitled to receive upon the happening of the applicable Fundamental Transaction had this Warrant been exercised immediately prior to the applicable Fundamental Transaction (without regard to any limitations on the exercise of this Warrant), as adjusted in accordance with the provisions of this Warrant. Notwithstanding the foregoing, and without limiting Section 1(f) hereof, the Holder may elect, at its sole option, by delivery of written notice to the Company to waive this Section 4(b) to permit the Fundamental Transaction without the assumption of this Warrant. In addition to and not in substitution for any other rights hereunder, prior to the consummation of each Fundamental Transaction pursuant to which holders of shares of Common Stock are entitled to receive securities or other assets with respect to or in exchange for shares of Common Stock (a “Corporate Event”), the Company shall make appropriate provision to insure that the Holder will thereafter have the right to receive upon an exercise of this Warrant at any time after the consummation of the applicable Fundamental Transaction but prior to the Expiration Date, in lieu of the shares of the Common Stock (or other securities, cash, assets or other property (except such items still issuable under Sections 3 and 4(a) above, which shall continue to be receivable thereafter)) issuable upon the exercise of the Warrant prior to such Fundamental Transaction, such shares of stock, securities, cash, assets or any other property whatsoever (including warrants or other purchase or subscription rights) (collectively, the “Corporate Event Consideration”) that the Holder would have been entitled to receive upon the happening of the applicable Fundamental Transaction had this Warrant been exercised immediately prior to the applicable Fundamental Transaction (without regard to any limitations on the exercise of this Warrant). The provision made pursuant to the preceding sentence shall be in a form and substance reasonably satisfactory to the Holder. The provisions of this Section 4(b) shall apply similarly and equally to successive Fundamental Transactions and Corporate Events. Notwithstanding the foregoing, in the event of a Change of Control, at the request of the Holder delivered before the 30th day after such Change of Control, the Company (or the Successor Entity) shall purchase this Warrant from the Holder by paying to the Holder, within five (5) Business Days after such request (or, if later, on the effective date of the Change of Control), an amount equal to the Black Scholes Value of the remaining unexercised portion of this Warrant on the effective date of such Change of Control, payable in cash; *provided, however*, that, if the Change of Control is not within the Company's control, including not approved by the Company's Board of Directors, the Holder shall only be entitled to receive from the Company or any Successor Entity, as of the date of consummation of such Change of Control, the same type or form of consideration (and in the same proportion), at the Black Scholes Value of the unexercised portion of this Warrant, that is being offered and paid to the holders of Common Stock of the Company in connection with the Change of Control, whether that consideration be in the form of cash, stock or any combination thereof, or whether the holders of Common Stock are given the choice to receive from among alternative forms of consideration in connection with the Change of Control.

5. NONCIRCUMVENTION. The Company hereby covenants and agrees that the Company will not, by amendment of its Certificate of Incorporation or Bylaws, or through any reorganization, transfer of assets, consolidation, merger, scheme of arrangement, dissolution, issuance 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, and will at all times in good faith carry out all of the provisions of this Warrant and take all action as may be required to protect the rights of the Holder. Without limiting the generality of the foregoing, the Company (i) shall not increase the par value of any shares of Common Stock receivable upon the exercise of this Warrant above the Exercise Price then in effect, (ii) shall take all such actions as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable shares of Common Stock upon the exercise of this Warrant, and (iii) shall, so long as any of the Warrants are outstanding, take all action necessary to reserve and keep available out of its authorized and unissued shares of Common Stock, solely for the purpose of effecting the exercise of the Warrants, the number of shares of Common Stock as shall from time to time be necessary to effect the exercise of the Warrants then outstanding (without regard to any limitations on exercise).

6. WARRANT HOLDER NOT DEEMED A STOCKHOLDER. Except as otherwise specifically provided herein, the Holder, solely in such Person's capacity as a holder of this Warrant, shall not be entitled to vote or receive dividends or be deemed the holder of capital stock of the Company for any purpose, nor shall anything contained in this Warrant be construed to confer upon the Holder, solely in such Person's capacity as the Holder of this Warrant, any of the rights of a stockholder of the Company or any right to vote, give or withhold consent to any corporate action (whether any reorganization, issue of stock, reclassification of stock, consolidation, merger, conveyance or otherwise), receive notice of meetings, receive dividends or subscription rights, or otherwise, prior to the issuance to the Holder of the Warrant Shares that such Person is then entitled to receive upon the due exercise of this Warrant. In addition, nothing contained in this Warrant shall be construed as imposing any liabilities on the Holder to purchase any securities (upon exercise of this Warrant or otherwise) or as a stockholder of the Company, whether such liabilities are asserted by the Company or by creditors of the Company. Notwithstanding this Section 6, the Company shall provide the Holder with copies of the same notices and other information given to the stockholders of the Company generally, contemporaneously with the giving thereof to the stockholders.

7. REISSUANCE OF WARRANTS.

(a) Transfer of Warrant. If this Warrant is to be transferred, the Holder shall surrender this Warrant to the Company, whereupon the Company will forthwith issue and deliver upon the order of the Holder a new Warrant (in accordance with Section 7(d)), registered as the Holder may request, representing the right to purchase the number of Warrant Shares being transferred by the Holder and, if less than the total number of Warrant Shares then underlying this Warrant is being transferred, a new Warrant (in accordance with Section 7(d)) to the Holder representing the right to purchase the number of Warrant Shares not being transferred.

(b) Lost, Stolen or Mutilated Warrant. Upon receipt by the Company of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant, and, in the case of loss, theft or destruction, of any indemnification undertaking by the Holder to the Company in customary form (but without the obligation to post a bond) and, in the case of mutilation, upon surrender and cancellation of this Warrant, the Company shall execute and deliver to the Holder a new Warrant (in accordance with Section 7(d)) representing the right to purchase the Warrant Shares then underlying this Warrant.

(c) Exchangeable for Multiple Warrants. This Warrant is exchangeable, upon the surrender hereof by the Holder at the principal office of the Company, for a new Warrant or Warrants (in accordance with Section 7(d)) representing in the aggregate the right to purchase the number of Warrant Shares then underlying this Warrant, and each such new Warrant will represent the right to purchase such portion of such Warrant Shares as is designated by the Holder at the time of such surrender.

(d) Issuance of New Warrants. If this Warrant is not held in global form through DTC (or any successor depository), whenever the Company is required to issue a new Warrant pursuant to the terms of this Warrant, such new Warrant (i) shall be of like tenor with this Warrant, (ii) shall represent, as indicated on the face of such new Warrant, the right to purchase the Warrant Shares then underlying this Warrant (or in the case of a new Warrant being issued pursuant to Section 7(a) or Section 7(c), the Warrant Shares designated by the Holder that, when added to the number of shares of Common Stock underlying the other new Warrants issued in connection with such issuance, does not exceed the number of Warrant Shares then underlying this Warrant), (iii) shall have an issuance date, as indicated on the face of such new Warrant that is the same as the Issuance Date, and (iv) shall have the same rights and conditions as this Warrant.

(e) Warrant Register. If this Warrant is held in global form through DTC (or any successor depository), the Warrant Agent shall register this Warrant, upon records to be maintained by the Warrant Agent for that purpose (the "**Warrant Register**"), in the name of the record Holder hereof from time to time. If this Warrant is not held in global form through DTC (or any successor depository), the Company and the Warrant Agent 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.

8. NOTICES. Whenever notice is required to be given under this Warrant, including, without limitation, an Exercise Notice, unless otherwise provided herein, such notice shall be given in writing, (i) if delivered (a) from within the domestic United States, by first-class registered or certified airmail, or nationally recognized overnight express courier, postage prepaid, electronic mail or by facsimile or (b) from outside the United States, by International Federal Express, electronic mail or facsimile, and (ii) will be deemed given (A) if delivered by first-class registered or certified mail domestic, three (3) Business Days after so mailed, (B) if delivered by nationally recognized overnight carrier, one (1) Business Day after so mailed, (C) if delivered by International Federal Express, two (2) Business Days after so mailed and (D) at the time of transmission, if delivered by electronic mail to each of the email addresses specified in this Section 8 prior to 5:00 p.m. (New York time) on a Trading Day, (E) the next Trading Day after the date of transmission, if delivered by electronic mail to each of the email addresses specified in this Section 8 on a day that is not a Trading Day or later than 5:00 p.m. (New York time) on any Trading Day and (F) if delivered by facsimile, upon electronic confirmation of receipt of such facsimile, and will be delivered and addressed as follows:

(i) if to the Company, to:
Outlook Therapeutics, Inc.
7 Clarke Drive
Cranbury, NJ 08512
Attn: Lawrence A. Kenyon

(ii) if to the Holder, at such address or other contact information delivered by the Holder to Company or as is on the books and records of the Company.

The Company shall provide the Holder with prompt written notice of all actions taken pursuant to this Warrant, including in reasonable detail a description of such action and the reason therefor. Without limiting the generality of the foregoing, the Company will give written notice to the Holder (i) immediately upon any adjustment of the Exercise Price, setting forth in reasonable detail, and certifying, the calculation of such adjustment and (ii) at least fifteen (15) days prior to the date on which the Company closes its books or takes a record (A) with respect to any dividend or distribution upon the shares of Common Stock, (B) with respect to any grants, issuances or sales of any Options, Convertible Securities or rights to purchase stock, warrants, securities or other property to holders of shares of Common Stock or (C) for determining rights to vote with respect to any Fundamental Transaction, dissolution or liquidation; *provided* in each case that such information shall be made known to the public prior to or in conjunction with such notice being provided to the Holder. It is expressly understood and agreed that the time of exercise specified by the Holder in each Exercise Notice shall be definitive and may not be disputed or challenged by the Company.

9. AMENDMENT AND WAIVER. Except as otherwise provided herein, the provisions of this Warrant may be amended or waived and the Company may take any action herein prohibited, or omit to perform any act herein required to be performed by it, only if the Company has obtained the written consent of the Holder.

10. GOVERNING LAW; JURISDICTION; JURY TRIAL. This Warrant shall be governed by and construed and enforced in accordance with, and all questions concerning the construction, validity, interpretation and performance of this Warrant shall be governed by, the internal laws of the State of New York, without giving effect to any choice of law or conflict of law provision or rule (whether of the State of New York or any other jurisdictions) that would cause the application of the laws of any jurisdictions other than the State of New York. The Company 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, and hereby irrevocably waives, and agrees not to assert in any suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such suit, action or proceeding is brought in an inconvenient forum or that the venue of such suit, action or proceeding is improper. The Company hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof to the Company at the address set forth in Section 8(i) above or such other address as the Company subsequently delivers to the Holder 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 manner permitted by law. Nothing contained herein shall be deemed or operate to preclude the Holder from bringing suit or taking other legal action against the Company in any other jurisdiction to collect on the Company's obligations to the Holder, to realize on any collateral or any other security for such obligations, or to enforce a judgment or other court ruling in favor of the Holder. If either party shall commence an action, suit or proceeding to enforce any provisions of this Warrant, the prevailing party in such action, suit or proceeding shall be reimbursed by the other party for their reasonable attorneys' fees and other costs and expenses incurred with the investigation, preparation and prosecution of such action or proceeding. **THE COMPANY HEREBY IRREVOCABLY WAIVES ANY RIGHT IT MAY HAVE, AND AGREES NOT TO REQUEST, A JURY TRIAL FOR THE ADJUDICATION OF ANY DISPUTE HEREUNDER OR IN CONNECTION WITH OR ARISING OUT OF THIS WARRANT OR ANY TRANSACTION CONTEMPLATED HEREBY.**

11. DISPUTE RESOLUTION. In the case of a dispute as to the determination of the Exercise Price or the arithmetic calculation of the Warrant Shares, the Company shall submit the disputed determinations or arithmetic calculations via facsimile or electronic mail within two (2) Business Days of receipt of the Exercise Notice or other event giving rise to such dispute, as the case may be, to the Holder. If the Holder and the Company are unable to agree upon such determination or calculation of the Exercise Price or the Warrant Shares within three (3) Business Days of such disputed determination or arithmetic calculation being submitted to the Holder, then the Company shall, within two (2) Business Days submit via facsimile or electronic mail (a) the disputed determination of the Exercise Price to an independent, reputable investment bank selected by the Company and approved by the Holder or (b) the disputed arithmetic calculation of the Warrant Shares to the Company's independent, outside accountant. The Company shall cause at its expense the investment bank or the accountant, as the case may be, to perform the determinations or calculations and notify the Company and the Holder of the results no later than ten (10) Business Days from the time it receives the disputed determinations or calculations. Such investment bank's or accountant's determination or calculation, as the case may be, shall be binding upon all parties absent demonstrable error.

12. REMEDIES, OTHER OBLIGATIONS, BREACHES AND INJUNCTIVE RELIEF. The remedies provided in this Warrant shall be cumulative and in addition to all other remedies available under this Warrant and any other Transaction Documents, at law or in equity (including a decree of specific performance and/or other injunctive relief), and nothing herein shall limit the right of the Holder to pursue actual damages for any failure by the Company to comply with the terms of this Warrant. The Company acknowledges that a breach by it of its obligations hereunder will cause irreparable harm to the Holder and that the remedy at law for any such breach may be inadequate. The Company therefore agrees that, in the event of any such breach or threatened breach, the holder of this Warrant shall be entitled, in addition to all other available remedies, to an injunction restraining any breach, without the necessity of showing economic loss and without any bond or other security being required.

13. TRANSFER. This Warrant and the Warrant Shares may be offered for sale, sold, transferred, pledged or assigned without the consent of the Company.

14. SEVERABILITY; CONSTRUCTION; HEADINGS. If any provision of this Warrant is prohibited by law or otherwise determined to be invalid or unenforceable by a court of competent jurisdiction, the provision that would otherwise be prohibited, invalid or unenforceable shall be deemed amended to apply to the broadest extent that it would be valid and enforceable, and the invalidity or unenforceability of such provision shall not affect the validity of the remaining provisions of this Warrant so long as this Warrant as so modified continues to express, without material change, the original intentions of the parties as to the subject matter hereof and the prohibited nature, invalidity or unenforceability of the provision(s) in question does not substantially impair the respective expectations or reciprocal obligations of the parties or the practical realization of the benefits that would otherwise be conferred upon the parties. The parties will endeavor in good faith negotiations to replace the prohibited, invalid or unenforceable provision(s) with a valid provision(s), the effect of which comes as close as possible to that of the prohibited, invalid or unenforceable provision(s). This Warrant shall be deemed to be jointly drafted by the Company and the Holder and shall not be construed against any Person as the drafter hereof. The headings of this Warrant are for convenience of reference and shall not form part of, or affect the interpretation of, this Warrant.

15. DISCLOSURE. Upon receipt or delivery by the Company of any notice in accordance with the terms of this Warrant, unless the Company has in good faith determined that the matters relating to such notice do not constitute material, nonpublic information relating to the Company or its subsidiaries, the Company shall contemporaneously with any such receipt or delivery publicly disclose such material, nonpublic information on a Current Report on Form 8-K or otherwise. In the event that the Company believes that a notice contains material, nonpublic information relating to the Company or its subsidiaries, the Company so shall indicate to such Holder contemporaneously with delivery of such notice, and in the absence of any such indication, the Holder shall be allowed to presume that all matters relating to such notice do not constitute material, nonpublic information relating to the Company or its subsidiaries.

16. WARRANT AGENT AGREEMENT. If this Warrant is held in global form through DTC (or any successor depositary), this Warrant is issued subject to the Warrant Agent Agreement. To the extent any provision of this Warrant conflicts with the express provisions of the Warrant Agent Agreement, the provisions of this Warrant shall govern and be controlling.

17. CERTAIN DEFINITIONS. For purposes of this Warrant, the following terms shall have the following meanings:

(a) “**Affiliate**” means, with respect to any Person, any other Person that directly or indirectly controls, is controlled by, or is under common control with, such Person, it being understood for purposes of this definition that “control” of a Person means the power directly or indirectly either to vote 10% or more of the stock having ordinary voting power for the election of directors of such Person or direct or cause the direction of the management and policies of such Person whether by contract or otherwise.

(b) “**Approved Stock Plan**” means any employee benefit plan that has been approved by a majority of the disinterested members of the Board of Directors of the Company, pursuant to which the Company’s securities may be issued to any employee, officer or director for services provided to the Company.

(c) “**Attribution Parties**” means, collectively, the following Persons and entities: (i) any investment vehicle, including, any funds, feeder funds or managed accounts, currently, or from time to time after the Subscription Date, directly or indirectly managed or advised by the Holder’s investment manager or any of its Affiliates or principals, (ii) any direct or indirect Affiliates of the Holder or any of the foregoing, (iii) any Person acting or who could be deemed to be acting as a Group together with the Holder or any of the foregoing and (iv) any other Persons whose beneficial ownership of the Company’s Common Stock would or could be aggregated with the Holder’s and the other Attribution Parties for purposes of Section 13(d) of the 1934 Act. For clarity, the purpose of the foregoing is to subject collectively the Holder and all other Attribution Parties to the Maximum Percentage.

(d) “**Bid Price**” means, for any security as of the particular time of determination, the bid price for such security on the Principal Market as reported by Bloomberg as of such time of determination, or, if the Principal Market is not the principal securities exchange or trading market for such security, the bid price of such security on the principal securities exchange or trading market where such security is listed or traded as reported by Bloomberg as of such time of determination, or if the foregoing does not apply, the bid price of such security in the over-the-counter market on the electronic bulletin board for such security as reported by Bloomberg as of such time of determination, or, if no bid price is reported for such security by Bloomberg as of such time of determination, the average of the bid prices of any market makers for such security as reported in the “pink sheets” by OTC Markets Group Inc. (formerly Pink Sheets LLC) as of such time of determination. If the Bid Price cannot be calculated for a security as of the particular time of determination on any of the foregoing bases, the Bid Price of such security as of such time of determination shall be the fair market value as mutually determined by the Company and the Holder. If the Company and the Holder are unable to agree upon the fair market value of such security, then such dispute shall be resolved in accordance with the procedures in Section 11. All such determinations shall be appropriately adjusted for any stock dividend, stock split, stock combination or other similar transaction during such period.

(e) “**Black Scholes Value**” means the value of this Warrant based on the Black-Scholes Option Pricing Model obtained from the “OV” function on Bloomberg determined as of the day immediately following the first public announcement of the applicable Change of Control, or, if the Change of Control is not publicly announced, the date the Change of Control is consummated, for pricing purposes and reflecting (i) a risk-free interest rate corresponding to the U.S. Treasury rate for a period equal to the remaining term of this Warrant as of such date of request, (ii) an expected volatility equal to 100%, (iii) the underlying price per share used in such calculation shall be the greater of (a) the highest Weighted Average Price during the five (5) Trading Days prior to the closing of the Change of Control and (b) 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 Change of Control, (iv) a zero cost of borrow and (v) a 360 day annualization factor.

(f) “**Bloomberg**” means Bloomberg Financial Markets.

(g) “**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.

(h) “**Change of Control**” means any Fundamental Transaction other than (i) any reorganization, recapitalization or reclassification of the Common Stock in which holders of the Company’s voting power immediately prior to such reorganization, recapitalization or reclassification continue after such reorganization, recapitalization or reclassification to hold publicly traded securities and, directly or indirectly, are, in all material respect, the holders of the voting power of the surviving entity (or entities with the authority or voting power to elect the members of the board of directors (or their equivalent if other than a corporation) of such entity or entities) after such reorganization, recapitalization or reclassification, (ii) pursuant to a migratory merger effected solely for the purpose of changing the jurisdiction of incorporation of the Company or (iii) a merger in connection with a bona fide acquisition by the Company of any Person in which (x) the gross consideration paid, directly or indirectly, by the Company in such acquisition is not greater than 40% of the Company’s market capitalization as calculated on the date of the consummation of such merger and (y) such merger does not contemplate a change to the identity of a majority of the board of directors of the Company. Notwithstanding anything herein to the contrary, any transaction or series of transactions that, directly or indirectly, results in the Company or the Successor Entity not having Common Stock or common stock, as applicable, registered under the 1934 Act and listed on an Eligible Market shall be deemed a Change of Control.

(i) “**Closing Bid Price**” and “**Closing Sale Price**” means, for any security as of any date, the last closing bid price and last closing trade price, respectively, for such security on the Principal Market, as reported by Bloomberg, or, if the Principal Market begins to operate on an extended hours basis and does not designate the closing bid price or the closing trade price, as the case may be, then the last bid price or the last trade price, respectively, of such security prior to 4:00:00 p.m., New York time, as reported by Bloomberg, or, if the Principal Market is not the principal securities exchange or trading market for such security, the last closing bid price or last trade price, respectively, of such security on the principal securities exchange or trading market where such security is listed or traded as reported by Bloomberg, or if the foregoing do not apply, the last closing bid price or last trade price, respectively, of such security in the over-the-counter market on the electronic bulletin board for such security as reported by Bloomberg, or, if no closing bid price or last trade price, respectively, is reported for such security by Bloomberg, the average of the bid prices, or the ask prices, respectively, of any market makers for such security as reported in the OTC Link or “pink sheets” by OTC Markets Group Inc. (formerly Pink OTC Markets Inc.). If the Closing Bid Price or the Closing Sale Price cannot be calculated for a security on a particular date on any of the foregoing bases, the Closing Bid Price or the Closing Sale Price, as the case may be, of such security on such date shall be the fair market value as mutually determined by the Company and the Holder. If the Company and the Holder are unable to agree upon the fair market value of such security, then such dispute shall be resolved pursuant to Section 11. All such determinations to be appropriately adjusted for any stock dividend, stock split, stock combination, reclassification or other similar transaction during the applicable calculation period.

(j) “**Common Stock**” means (i) the Company’s Common Stock, par value \$0.01 per share, and (ii) any capital stock into which such Common Stock shall have been changed or any capital stock resulting from a reclassification of such Common Stock.

(k) “**Convertible Securities**” means any stock or securities (other than Options) directly or indirectly convertible into or exercisable or exchangeable for shares of Common Stock.

(l) “**Eligible Market**” means The NASDAQ Capital Market, the NYSE American LLC, The NASDAQ Global Select Market, The NASDAQ Global Market or The New York Stock Exchange, Inc.

(m) “**Excluded Securities**” means any shares of Common Stock issued or issuable, or deemed issued or issuable pursuant to Section 2(a): (i) in connection with any Approved Stock Plan, including, for the avoidance of doubt, the issuance of equity awards (including Options or Convertible Securities) pursuant to any such Approved Stock Plan after the Subscription Date, (ii) upon exercise of the Warrants, (iii) upon conversion, exercise, exchange or settlement of any Options or Convertible Securities that are outstanding on the day immediately preceding the Subscription Date, (iv) upon the issuance of “payment-in-kind” dividends of additional shares of the Company’s Series A-1 Convertible Preferred Stock, as contemplated by the terms thereof, and (v) pursuant to acquisitions, divestitures, licenses, partnerships, collaborations or strategic transactions approved by the Board of Directors or a majority of the members of a committee of directors established for such purposes; *provided* that any such issuance shall only be to a Person (or to the equity holders of a Person) that is, itself or through its subsidiaries, an operating company or 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.

(n) “**Expiration Date**” means the date fifteen (15) months after the Initial Exercisability Date or, if such date falls on a day other than a Business Day or on which trading does not take place on the Principal Market (a “**Holiday**”), the next day that is not a Holiday.

(o) “**Fundamental Transaction**” means (A) that the Company shall, directly or indirectly, including through subsidiaries, Affiliates or otherwise, in one or more related transactions, (i) consolidate or merge with or into (whether or not the Company is the surviving corporation) another Subject Entity, or (ii) sell, assign, transfer, convey or otherwise dispose of all or substantially all of the properties or assets of the Company or any of its “significant subsidiaries” (as defined in Rule 1-02 of Regulation S-X) to one or more Subject Entities, or (iii) make, or allow one or more Subject Entities to make, or allow the Company to be subject to or have its shares of Common Stock be subject to or party to one or more Subject Entities making, a purchase, tender or exchange offer that is accepted by the holders of at least either (x) 50% of the outstanding shares of Common Stock, (y) 50% of the outstanding shares of Common Stock calculated as if any shares of Common Stock held by all Subject Entities making or party to, or Affiliated with any Subject Entities making or party to, such purchase, tender or exchange offer were not outstanding; or (z) such number of shares of Common Stock such that all Subject Entities making or party to, or Affiliated with any Subject Entity making or party to, such purchase, tender or exchange offer, become collectively the beneficial owners (as defined in Rule 13d-3 under the 1934 Act) of at least 50% of the outstanding shares of Common Stock, or (iv) consummate a stock purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with one or more Subject Entities whereby all such Subject Entities, individually or in the aggregate, acquire, either (x) at least 50% of the outstanding shares of Common Stock, (y) at least 50% of the outstanding shares of Common Stock calculated as if any shares of Common Stock held by all the Subject Entities making or party to, or Affiliated with any Subject Entity making or party to, such stock purchase agreement or other business combination were not outstanding; or (z) such number of shares of Common Stock such that the Subject Entities become collectively the beneficial owners (as defined in Rule 13d-3 under the 1934 Act) of at least 50% of the outstanding shares of Common Stock, or (v) reorganize, recapitalize or reclassify its shares of Common Stock, (B) that the Company shall, directly or indirectly, including through subsidiaries, Affiliates or otherwise, in one or more related transactions, allow any Subject Entity individually or the Subject Entities in the aggregate to be or become the “beneficial owner” (as defined in Rule 13d-3 under the 1934 Act), directly or indirectly, whether through acquisition, purchase, assignment, conveyance, tender, tender offer, exchange, reduction in outstanding shares of Common Stock, merger, consolidation, business combination, reorganization, recapitalization, spin-off, scheme of arrangement, reorganization, recapitalization or reclassification or otherwise in any manner whatsoever, of either (x) at least 50% of the aggregate ordinary voting power represented by issued and outstanding shares of Common Stock, (y) at least 50% of the aggregate ordinary voting power represented by issued and outstanding shares of Common Stock not held by all such Subject Entities as of the Subscription Date calculated as if any shares of Common Stock held by all such Subject Entities were not outstanding, or (z) a percentage of the aggregate ordinary voting power represented by issued and outstanding shares of Common Stock or other equity securities of the Company sufficient to allow such Subject Entities to effect a statutory short form merger or other transaction requiring other stockholders of the Company to surrender their Common Stock without approval of the stockholders of the Company or (C) directly or indirectly, including through subsidiaries, Affiliates or otherwise, in one or more related transactions, the issuance of or the entering into any other instrument or transaction structured in a manner to circumvent, or that circumvents, the intent of this definition in which case this definition shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this definition to the extent necessary to correct this definition or any portion of this definition that may be defective or inconsistent with the intended treatment of such instrument or transaction.

(p) “**Group**” means a “group” as that term is used in Section 13(d) of the 1934 Act and as defined in Rule 13d-5 thereunder.

(q) “**Option Value**” means the value of an Option based on the Black-Scholes Option Pricing model obtained from the “OV” function on Bloomberg determined as of the day of the most recent Closing Sale Price of the Common Stock prior to the public announcement of the pricing of the applicable Option (or, if the pricing is not publicly announced, on the most recent Closing Sale Price of the Common Stock prior to the pricing of the applicable Option) and reflecting (i) a risk-free interest rate corresponding to the U.S. Treasury rate for a period equal to the remaining term of the applicable Option as of the applicable date of determination, (ii) an expected volatility equal to 50%, (iii) an underlying price per share equal to the most recent Closing Sale Price of the Common Stock prior to the public announcement of the pricing of the applicable Option (or, if the pricing is not publicly announced, on the most recent Closing Sale Price of the Common Stock prior to the pricing of the applicable Option), (iv) a zero cost of borrow and (v) a 360-day annualization factor.

(r) “**Options**” means any rights, warrants or options to subscribe for or purchase shares of Common Stock or Convertible Securities.

(s) “**Parent Entity**” of a Person means an entity that, directly or indirectly, controls the applicable Person, including such entity whose common stock or equivalent equity security is quoted or listed on an Eligible Market (or, if so elected by the Holder, any other market, exchange or quotation system), or, if there is more than one such Person or such entity, the Person or such entity designated by the Holder or in the absence of such designation, such Person or entity with the largest public market capitalization as of the date of consummation of the Fundamental Transaction or Change of Control.

(t) “**Person**” means an individual, a limited liability company, a partnership, a joint venture, a corporation, a trust, an unincorporated organization, any other entity and a government or any department or agency thereof.

(u) “**Principal Market**” means the principal securities exchange or securities market on which the Common Stock is then traded.

(v) “**Required Holders**” means the holders of the Warrants representing at least a majority of the shares of Common Stock underlying the Warrants then outstanding.

(w) “**Standard Settlement Period**” means the standard settlement period, expressed in a number of Trading Days, for the Company’s primary trading market or quotation system with respect to the Common Stock that is in effect on the date of receipt of an applicable Exercise Notice.

(x) “**Subject Entity**” means any Person, Persons or Group or any Affiliate or associate of any such Person, Persons or Group.

(y) “**Successor Entity**” means one or more Person or Persons (or, if so elected by the Holder, the Company or Parent Entity) formed by, resulting from or surviving any Fundamental Transaction or Change of Control or one or more Person or Persons (or, if so elected by the Holder, the Company or the Parent Entity) with which such Fundamental Transaction or Change of Control shall have been entered into.

(z) “**Trading Day**” means any day on which the Common Stock is traded on the Principal Market, or, if the Principal Market is not the principal trading market for the Common Stock, then on the principal securities exchange or securities market on which the Common Stock is then traded.

(aa) “**Transaction Documents**” means any agreement entered into by and between the Company and the Holder, as applicable.

(bb) “**Warrant Agent Agreement**” means that certain Warrant Agent Agreement, dated as of the Initial Exercise Date, between the Company and the Warrant Agent.

(cc) “**Warrant Agent**” means American Stock transfer & Trust Company, LLC, a New York limited liability trust company.

(dd) “**Weighted Average Price**” means, for any security as of any date, the dollar volume-weighted average price for such security on the Principal Market during the period beginning at 9:30:01 a.m., New York time (or such other time as the Principal Market publicly announces is the official open of trading), and ending at 4:00:00 p.m., New York time (or such other time as the Principal Market publicly announces is the official close of trading), as reported by Bloomberg through its “Volume at Price” function or, if the foregoing does not apply, the dollar volume-weighted average price of such security in the over-the-counter market on the electronic bulletin board for such security during the period beginning at 9:30:01 a.m., New York time (or such other time as such market publicly announces is the official open of trading), and ending at 4:00:00 p.m., New York time (or such other time as such market publicly announces is the official close of trading), as reported by Bloomberg, or, if no dollar volume-weighted average price is reported for such security by Bloomberg for such hours, the average of the highest Closing Bid Price and the lowest closing ask price of any of the market makers for such security as reported in the OTC Link or “pink sheets” by OTC Markets Group Inc. (formerly Pink OTC Markets Inc.). If the Weighted Average Price cannot be calculated for a security on a particular date on any of the foregoing bases, the Weighted Average Price of such security on such date shall be the fair market value as mutually determined by the Company and the Holder. If the Company and the Holder are unable to agree upon the fair market value of such security, then such dispute shall be resolved pursuant to Section 11 with the term “Weighted Average Price” being substituted for the term “Exercise Price.” All such determinations shall be appropriately adjusted for any stock dividend, stock split, stock combination, reclassification or other similar transaction during the applicable calculation period.

[Signature Page Follows]

IN WITNESS WHEREOF, the Company has caused this 15-Month Warrant to Purchase Common Stock to be duly executed as of the Issuance Date set out above.

OUTLOOK THERAPEUTICS, INC.

By: _____

Name:

Title:

EXERCISE NOTICE

TO BE EXECUTED BY THE REGISTERED HOLDER TO EXERCISE THIS
15-MONTH WARRANT TO PURCHASE COMMON STOCK

OUTLOOK THERAPEUTICS, INC.

The undersigned holder hereby exercises the right to purchase _____ shares of Common Stock (“**Warrant Shares**”) of Outlook Therapeutics, Inc., a company organized under the laws of Delaware (the “**Company**”), evidenced by the attached 15-Month Warrant to Purchase Common Stock (the “**Warrant**”). Capitalized terms used herein and not otherwise defined shall have the respective meanings set forth in the Warrant.

1. Form of Exercise Price. The Holder intends that payment of the Exercise Price shall be made as:

_____ a “Cash Exercise” with respect to _____ Warrant Shares; and/or

_____ a “Cashless Exercise” with respect to _____ Warrant Shares.

2. Payment of Exercise Price. In the event that the holder has elected a Cash Exercise with respect to some or all of the Warrant Shares to be issued pursuant hereto, the holder shall pay the Aggregate Exercise Price in the sum of \$ _____ to the Company in accordance with the terms of the Warrant.

3. Delivery of Warrant Shares. The Company shall deliver to the holder _____ Warrant Shares in accordance with the terms of the Warrant.

Date: _____, _____

Name of Registered Holder

By: _____

Name:

Title:

ACKNOWLEDGMENT

The Company hereby acknowledges this Exercise Notice and hereby directs American Stock Transfer & Trust Company, LLC to issue the above indicated number of shares of Common Stock on or prior to the applicable Share Delivery Date.

OUTLOOK THERAPEUTICS, INC.

By: _____
Name:
Title:

Exhibit E

Form of Warrant Certificate Request Notice

WARRANT CERTIFICATE REQUEST NOTICE

To: American Stock Transfer & Trust Company, LLC, as Warrant Agent for Outlook Therapeutics, Inc. (the "Company")

The undersigned Holder of Five-Year Common Stock Purchase Warrants ("Warrants") in the form of Global Warrants issued by the Company hereby elects to receive a Definitive Certificate evidencing the Warrants held by the Holder as specified below:

1. Name of Holder of Warrants in form of Global Warrants: _____
2. Name of Holder in Definitive Certificate (if different from name of Holder of Warrants in form of Global Warrants):

3. Number of Warrants in name of Holder in form of Global Warrants: _____
4. Number of Warrants for which Definitive Certificate shall be issued: _____
5. Number of Warrants in name of Holder in form of Global Warrants after issuance of Definitive Certificate, if any: _____
6. Definitive Certificate shall be delivered to the following address:

The undersigned hereby acknowledges and agrees that, in connection with this Warrant Exchange and the issuance of the Definitive Certificate, the Holder is deemed to have surrendered the number of Warrants in form of Global Warrants in the name of the Holder equal to the number of Warrants evidenced by the Definitive Certificate.

[SIGNATURE OF HOLDER]

Name of Investing Entity:

Signature of Authorized Signatory of Investing Entity:

Name of Authorized Signatory:

Title of Authorized Signatory:

Date:

Exhibit F

Form of Warrant Certificate Request Notice

WARRANT CERTIFICATE REQUEST NOTICE

To: American Stock Transfer & Trust Company, LLC, as Warrant Agent for Outlook Therapeutics, Inc. (the "Company")

The undersigned Holder of 15-Month Common Stock Purchase Warrants ("Warrants") in the form of Global Warrants issued by the Company hereby elects to receive a Definitive Certificate evidencing the Warrants held by the Holder as specified below:

1. Name of Holder of Warrants in form of Global Warrants: _____
2. Name of Holder in Definitive Certificate (if different from name of Holder of Warrants in form of Global Warrants):

3. Number of Warrants in name of Holder in form of Global Warrants: _____
4. Number of Warrants for which Definitive Certificate shall be issued: _____
5. Number of Warrants in name of Holder in form of Global Warrants after issuance of Definitive Certificate, if any: _____
6. Definitive Certificate shall be delivered to the following address:

The undersigned hereby acknowledges and agrees that, in connection with this Warrant Exchange and the issuance of the Definitive Certificate, the Holder is deemed to have surrendered the number of Warrants in form of Global Warrants in the name of the Holder equal to the number of Warrants evidenced by the Definitive Certificate.

[SIGNATURE OF HOLDER]

Name of Investing Entity:

Signature of Authorized Signatory of Investing Entity:

Name of Authorized Signatory:

Title of Authorized Signatory:

Date:



Yvan-Claude Pierre
+1 212 479 6721
ypierre@cooley.com

April 9, 2019

Outlook Therapeutics, Inc.
7 Clarke Drive
Cranbury, New Jersey 08512

Ladies and Gentlemen:

You have requested our opinion, as counsel to Outlook Therapeutics, Inc., a Delaware corporation (the "**Company**"), in connection with the filing by the Company of a Registration Statement (No. 333-229761) on Form S-1 (the "**Registration Statement**") with the Securities and Exchange Commission, including a related prospectus filed with the Registration Statement (the "**Prospectus**"), covering a public offering (the "**Offering**") of (i) up to 4,091,653 shares (the "**Shares**") of common stock of the Company, \$0.01 par value per share (the "**Common Stock**"), (ii) 15-Month Warrants (the "**15-Month Warrants**") to purchase up to 4,091,653 shares of Common Stock (the "**15-Month Warrant Shares**") and (iii) Five-Year Warrants (the "**Five-Year Warrants**") and, collectively with the 15-Month Warrants, the "**Warrants**") to purchase up to 4,091,653 shares of Common Stock (collectively with the 15-Month Warrant Shares, the "**Warrant Shares**"). The Shares, the Warrants and the Warrant Shares are to be sold by the Company as described in the Registration Statement and the Prospectus.

In connection with this opinion, we have examined and relied upon the Registration Statement and Prospectus, the form of the 15-Month Warrants, the form of the Five-Year Warrants, the Company's Certificate of Incorporation, as amended, its Amended and Restated Bylaws and originals or copies certified to our satisfaction of such records, documents, certificates, memoranda and other instruments as in our judgment are necessary or appropriate to enable us to render the opinion expressed below. We have assumed the genuineness and authenticity of all documents submitted to us as originals, and the conformity to originals of all documents submitted to us as copies thereof and the due execution and delivery of all documents by all persons other than the Company where due execution and delivery are a prerequisite to the effectiveness thereof. In addition, we have assumed that the Board of Directors of the Company or a pricing committee thereof has taken action to set the sale price of the Shares and the Warrants and the exercise price of the Warrants.

With regard to our opinion regarding the Warrants and the Warrant Shares, we express no opinion to the extent that, notwithstanding its current reservation of shares of Common Stock, future issuances of securities, including the Warrant Shares, of the Company and/or antidilution adjustments to outstanding securities, including the Warrants, of the Company cause the Warrants to be exercisable for more shares of Common Stock than the number that then remain authorized but unissued.

With regard to our opinion concerning the Warrants constituting valid and binding obligations of the Company:

(i) Our opinion is subject to, and may be limited by, (a) applicable bankruptcy, reorganization, insolvency, moratorium, fraudulent conveyance, debtor and creditor, and similar laws which relate to or affect creditors' rights generally, and (b) general principles of equity (including, without limitation, concepts of materiality, reasonableness, good faith and fair dealing) regardless of whether considered in a proceeding in equity or at law.

Cooley LLP 1114 Avenue of the Americas New York, NY 10036
t: (212) 479-6000 f: (212) 479-6275 cooley.com



April 9, 2019
Page Two

(ii) Our opinion is subject to the qualification that the availability of specific performance, an injunction or other equitable remedies is subject to the discretion of the court before which the request is brought.

(iii) We express no opinion as to any provision of the Warrants that: (a) provides for liquidated damages, buy-in damages, monetary penalties, prepayment or make-whole payments or other economic remedies to the extent such provisions may constitute unlawful penalties, (b) relates to advance waivers of claims, defenses, rights granted by law, or notice, opportunity for hearing, evidentiary requirements, statutes of limitations, trial by jury, or procedural rights, (c) restricts non-written modifications and waivers, (d) provides for the payment of legal and other professional fees where such payment is contrary to law or public policy, (e) relates to exclusivity, election or accumulation of rights or remedies, (f) authorizes or validates conclusive or discretionary determinations, or (g) provides that provisions of the Warrants are severable to the extent an essential part of the agreed exchange is determined to be invalid and unenforceable.

(iv) We express no opinion as to whether a state court outside of the State of New York or a federal court of the United States would give effect to the choice of New York law or jurisdiction provided for in the Warrants.

Our opinion herein is expressed solely with respect to the General Corporation Law of the State of Delaware and, as to the Warrants constituting valid and legally binding obligations of the Company, the laws of the State of New York. Our opinion is based on these laws as in effect on the date hereof. We express no opinion to the extent that any other laws are applicable to the subject matter hereof and express no opinion and provide no assurance as to compliance with any federal or state securities law, rule or regulation. Further, we have assumed the Exercise Price (as defined in the Warrants) will not be adjusted to an amount below the par value per share of the Common Stock.

On the basis of the foregoing, and in reliance thereon, we are of the opinion that (i) the Shares, when sold in accordance with the Registration Statement and the Prospectus, will be validly issued, fully paid and nonassessable, (ii) provided that the Warrants have been duly executed and delivered by the Company to the purchasers thereof against payment therefor, the Warrants, when issued and sold as contemplated in the Registration Statement and the Prospectus will be valid and legally binding obligations of the Company, enforceable against the Company in accordance with their terms, and (iii) the Warrant Shares, when issued and paid for in accordance with the terms of the Warrants, will be validly issued, fully paid and nonassessable.

We consent to the reference to our firm under the caption "Legal Matters" in the Prospectus and to the filing of this opinion as an exhibit to the Registration Statement.

Very truly yours,

COOLEY LLP

By: /s/ Yvan-Claude Pierre
Yvan-Claude Pierre

Cooley LLP 1114 Avenue of the Americas New York, NY 10036
t: (212) 479-6000 f: (212) 479-6275 cooley.com

Consent of Independent Registered Public Accounting Firm

The Board of Directors
Outlook Therapeutics, Inc.:

We consent to the use of our report incorporated by reference herein and to the reference to our firm under the heading “Experts” in the prospectus.

Our report dated December 18, 2018 contains an explanatory paragraph that states that Outlook Therapeutics, Inc. has incurred recurring losses and negative cash flows from operations and has an accumulated deficit at September 30, 2018 of \$216.3 million, \$13.5 million of senior secured notes that may become due in fiscal 2019 and \$4.6 million of unsecured indebtedness, \$1.0 million of which is due on demand, and \$3.6 million of which matures December 22, 2018, that raise substantial doubt about its ability to continue as a going concern. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

/s/ KPMG LLP

Philadelphia, Pennsylvania
April 8, 2019
