

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

Amendment No. 3
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)

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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.

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.

Explanatory Note

The sole purpose of this Amendment No. 3 to the Registration Statement on Form S-1 (the "Registration Statement") is to amend the exhibit index in Item 16 of Part II of the Registration Statement to submit Exhibit 1.1 and Exhibit 5.1. Accordingly, this Amendment No. 3 consists only of the facing page, this explanatory note, Part II of the Registration Statement, including the signature page, the exhibit index and the exhibits filed

herewith. No changes are being made to the prospectus and, therefore, the prospectus has been omitted from this filing.



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.

	<u>Amount</u>
SEC registration fee	\$ 6,969
FINRA filing fee	8,625
Accountant's fees and expenses	100,000
Legal fees and expenses	400,000
Transfer agent's fees and expenses	5,000
Printing and engraving expenses	30,000
Miscellaneous	9,406
Total expenses	<u>\$560,000</u>

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, and 1,505 additional shares on December 31, 2018, 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>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
<u>10.45</u>	<u>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).</u>
<u>10.46</u>	<u>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).</u>
<u>10.47</u>	<u>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).</u>
<u>10.48</u>	<u>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).</u>
<u>10.49</u>	<u>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).</u>
<u>10.50</u>	<u>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).</u>
<u>10.51</u>	<u>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).</u>
<u>10.52</u>	<u>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).</u>
<u>10.53</u>	<u>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).</u>
<u>10.54</u>	<u>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).</u>
<u>10.55</u>	<u>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).</u>
<u>10.56</u>	<u>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).</u>
<u>23.1+</u>	<u>Consent of independent registered public accounting firm.</u>
<u>23.2*</u>	<u>Consent of Cooley LLP (included in Exhibit 5.1).</u>
<u>24.1</u>	<u>Power of Attorney (included on signature page to the original filing of this registration statement).</u>

* 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.

+ Previously filed

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) That, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to section 13(a) or section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement 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.
- (2) To deliver or cause to be delivered with the prospectus, to each person to whom the prospectus is sent or given, the latest annual report to securityholders that is incorporated by reference in the prospectus and furnished pursuant to and meeting the requirements of Rule 14a-3 or Rule 14c-3 under the Securities Exchange Act of 1934; and, where interim financial information required to be presented by Article 3 of Regulation S-X are not set forth in the prospectus, to deliver, or cause to be delivered to each person to whom the prospectus is sent or given, the latest quarterly report that is specifically incorporated by reference in the prospectus to provide such interim financial information.
- (3) 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.
- (4) 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.
- (5) 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. 3 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 2, 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. 3 to the registration statement on Form S-1 has been signed by the following persons in the capacities and on the dates indicated.

<u>Signatures</u>	<u>Title</u>	<u>Date</u>
* _____ Ralph H. Thurman	Executive Chairman	April 2, 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 2, 2019
* _____ Yezan Haddadin	Director	April 2, 2019
* _____ Kurt J. Hilzinger	Director	April 2, 2019
* _____ Pankaj Mohan, Ph.D.	Director	April 2, 2019
* _____ Faisal G. Sukhtian	Director	April 2, 2019
* _____ Joe Thomas	Director	April 2, 2019
* _____ Joerg Windisch, Ph.D.	Director	April 2, 2019
* By: /s/ Lawrence A. Kenyon _____ Lawrence A. Kenyon Attorney-in-Fact		

OUTLOOK THERAPEUTICS, INC.

[●] 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 [●] shares (the "Firm Shares") of the Company's common stock, \$0.01 par value per share (the "Common Stock"). The respective amounts of the Firm Shares to be purchased by each of the several Underwriters are set forth opposite their names on Schedule I hereto. In addition, the Company proposes to grant to the Underwriters an option to purchase up to an additional [●] shares (the "Option Shares") of Common Stock from the Company for the purpose of covering over-allotments in connection with the sale of the Firm Shares. The Firm Shares and the Option Shares are collectively called the "Shares."

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 Shares, 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 Shares 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, 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. 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 purchase price of \$[●] per share (the "Initial Price"), the number of Firm Shares set forth opposite the name of such Underwriter under the column "Number of Firm Shares to be Purchased from the Company" on Schedule I to this Agreement, subject to adjustment in accordance with Section 8 hereof.

(b) The Company hereby grants to the several Underwriters an option to purchase, severally and not jointly, all or any part of the Option Shares at the Initial Price. The number of Option Shares to be purchased by each Underwriter shall be the same percentage (as the same may be adjusted by the Representative to eliminate fractions) of the total number of Option Shares to be purchased by the Underwriters as such Underwriter is purchasing of the Firm Shares. Such option may be exercised only to cover over-allotments in the sales of the Firm Shares by the Underwriters and may be exercised in whole or in part at any time on or before 12:00 Noon, New York City time, on the business day before the Firm Shares Closing Date (as defined below), and from time to time thereafter within thirty (30) days after the date of this Agreement, in each case upon written, facsimile or telegraphic notice, or verbal or telephonic notice confirmed by written, facsimile or telegraphic notice, by the Representative to the Company no later than 12:00 Noon, New York City time, on the business day before the Firm Shares Closing Date or no later than 12:00 Noon, New York City time, at least two (2) business days before the Option Shares Closing Date (as defined below), as the case may be, setting forth the number of Option Shares to be purchased and the time and date (if other than the Firm Shares Closing Date) of such purchase.

(c) Payment of the purchase price for, and delivery of the Firm Shares 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 [●] 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 "Firm Shares Closing Date"). In addition, in the event that any or all of the Option Shares are purchased by the Underwriters, payment of the purchase price, and delivery of the Option Shares shall be made at the above-mentioned offices, or at such other place as shall be agreed upon by the Representative and the Company, on each date of delivery as specified in the notice from the Representative to the Company (such time and date of delivery and payment are called the "Option Shares Closing Date"). The Firm Shares Closing Date and any Option Shares Closing Date are called, individually, a "Closing Date" and, together, the "Closing Dates."

(d) 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 Firm Shares or the Option Shares, as applicable, to the account of the Representative for the respective accounts of the Underwriters of certificates for the Shares to be purchased by them.

(e) The Firm Shares and Option Shares, as applicable, shall be registered in such names and shall be in such denominations as the Representative shall request at least two (2) full business days before the Firm Shares Closing Date or, in the case of Option Shares, on the day of notice of exercise of the option as described in Section 1(b), 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, as of the Firm Shares Closing Date and as of each Option Shares Closing Date (if any), 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 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 Shares 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 Shares, 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 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.

(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 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 Shares) 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 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 Shares 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 Shares, when issued and sold pursuant to this Agreement, 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 and the Shares 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 and the issuance and sale of the Shares by the Company.

(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 Shares.

(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 Shares are 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 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 Shares 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 Firm Shares Closing Date, or the Option Shares Closing Date, and (ii) completion of the distribution of the Shares, any offering material in connection with the offering and sale of the Shares 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 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 each 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 such Closing Date.

(d) The Representative shall have received on each Closing Date a certificate, addressed to the Representative and dated such 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 such 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 each Closing Date, a signed letter from the Auditor addressed to the Representative and dated the date of such 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 each 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 such Closing Date, in form and substance reasonably satisfactory to the Representative.

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

(h) All proceedings taken in connection with the sale of the Firm Shares and the Option Shares 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 Nasdaq shall have raised no objection with respect to the listing of the Shares which has not been resolved to the reasonable satisfaction of the Representative on or before the Firm Shares 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 as contemplated hereby.

(l) On or prior to the Firm Shares 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.

(m) 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 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, 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 Shares 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 Shares; 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 Shares 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 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 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 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 to the Underwriters; (iii) the registration or qualification of the Shares 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 by the Underwriters or by dealers to whom Shares 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 for quotation on the Nasdaq Capital Market; and (vii) all transfer taxes, if any, with respect to the sale and delivery of the Shares 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 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 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 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 is 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 Shares 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 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 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 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 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 to be purchased on a Closing Date by the Representative by notifying the Company at any time at or before a 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 or enforce contracts for the sale of the Shares; (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 or enforce contracts for the sale of the Shares; (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 or in contemplation of performing their obligations hereunder and (y) no Underwriter who shall have failed or refused to purchase the Shares 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 any Closing Date the Shares 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 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 on such terms. If, after giving effect to any arrangements for the purchase of the Shares of a defaulting Underwriter or Underwriters by the Representative and the Company as provided above, the aggregate number of Shares which remains unpurchased on such Closing Date does not exceed one-eleventh of the aggregate number of all the Shares that all the Underwriters are obligated to purchase on such date, then the Company shall have the right to require each non-defaulting Underwriter to purchase the number of Shares 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 which such Underwriter agreed to purchase hereunder) of the Shares 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 applicable 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 of a defaulting Underwriter or Underwriters by the Representative and the Company as provided above, the aggregate number of such Shares which remains unpurchased exceeds 10% of the aggregate number of all the Shares to be purchased at such date, then this Agreement, or, with respect to a Closing Date which occurs after the First Closing Date, the obligations of the Underwriters to purchase, and of the Company, as the case may be, to sell, the Option Shares to be purchased and sold on such date, 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.

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. 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 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 Firm Shares to Be Purchased
Oppenheimer & Co. Inc.	[●]
Aegis Capital Corporation	[●]
TOTAL	[●]

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

None.

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.

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: _____



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

April 2, 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 up to an aggregate of 8,121,467 shares (the "*Shares*") of the Company's common stock, \$0.01 par value per share (the "*Common Stock*"). The 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 Company's Certificate of Incorporation, as amended, its Amended and Restated Bylaws and the 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 duly authorized committee thereof has taken action to set the sale price of the Shares.

Our opinion herein is expressed solely with respect to the General Corporation Law of the State of Delaware. 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.

On the basis of the foregoing, and in reliance thereon, we are of the opinion that the Shares, when sold in accordance with the Registration Statement and the Prospectus, 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

/s/ Yvan-Claude Pierre
Yvan-Claude Pierre

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