

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, DC 20549

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): **August 20, 2019**

Trovagene, Inc.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction
of incorporation or organization)

001-35558
(Commission File
Number)

27-2004382
(IRS Employer
Identification No.)

11055 Flintkote Avenue
San Diego, CA 92121
(Address of principal executive offices)

Registrant's telephone number, including area code: **(858) 952-7570**

(Former name or former address, if changed since last report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

- Written communication pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

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

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

Securities registered pursuant to Section 12(b) of the Act:

Title of each class:
Common Stock

Trading Symbol(s)
TROV

Name of each exchange on which registered:
The Nasdaq Capital Market

Item 1.01 Entry into a Material Definitive Agreement

On August 20, 2019, Trovagene, Inc. (the “Company”) entered into a Securities Purchase Agreement (the “Purchase Agreement”) with Lincoln Park Capital Fund, LLC (the “Purchaser”), pursuant to which the Company agreed to offer, issue and sell to the Purchaser, (i) in a registered direct offering, an aggregate of (a) 271,744 shares (the “Shares”) of common stock, par value \$0.0001 per share (“Common Stock”) and (b) Series E pre-funded warrants (the “Series E Pre-Funded Warrants”) to purchase up to 456,058 shares (the “Series E Warrant Shares”) of the Company’s common stock, par value \$0.0001 per share (the “Common Stock”), which will be exercisable immediately upon issuance for a period of five years after the date of issuance, and (ii) in a concurrent private placement, Series F warrants (the “Series F Warrants”) to purchase up to 707,802 shares (the “Series F Warrant Shares”) of Common Stock, for aggregate gross proceeds to the Company of approximately \$1.5 million, before deducting estimated offering expenses payable by the Company.

The combined purchase price for each Share, together with one Series F Warrant, is \$2.061 per Share/Series F Warrant. Each Series F Warrant shall be exercisable beginning on the six-month anniversary of the date of issuance and for a period of five years after such date (or five-and-a-half years after the issuance date), at an exercise price of \$1.936 per Series F Warrant Share. The exercise price of the Series F Warrants and the shares of the Company’s Common Stock issuable upon the exercise of the Series F Warrants (the “Series F Warrant Shares”) will be subject to adjustment in the event of any stock dividends and splits, reverse stock split, recapitalization, reorganization or similar transaction, as described in the Series F Warrants.

The aggregate exercise price of the Series E Pre-Funded Warrants (\$2.061 per Series E Warrant Share), except for a nominal exercise price of \$0.01 per Series E Warrant Share, will be pre-funded to the Company on the date of issuance of the Series E Pre-Funded Warrants and, consequently, no additional consideration (other than the nominal exercise price of \$0.01 per Series E Warrant Share) shall be required to be paid by the holder to effect any exercise of the Series E Pre-Funded Warrants. The Company shall not be required to return or refund any portion of such pre-paid aggregate exercise price of the Series E Pre-Funded Warrants for any reason, including in the event such Series E Pre-Funded Warrants shall not have been exercised prior to expiration. Each of the Series E Pre-Funded Warrants and the Series F Warrants may be exercised on a “cashless” basis under certain circumstances set forth in the warrants.

The Shares, Series E Pre-Funded Warrants and the Series E Warrant Shares issuable upon exercise of the Series E Pre-Funded Warrants are being offered by the Company pursuant to an effective shelf registration statement on Form S-3, which was originally filed with the Securities and Exchange Commission on June 25, 2019, and was declared effective on July 1, 2019 (File No. 333-232321) (the “Registration Statement”).

The Series F Warrants and the Series F Warrant Shares have not been registered under the Securities Act of 1933, as amended (the “Securities Act”), and are instead being offered pursuant to the exemption provided in Section 4(a)(2) under the Securities Act and Rule 506(b) promulgated thereunder.

Per the terms of the Purchase Agreement, the Company has agreed to certain restrictions on future stock offerings, including that during the 60-day period following the closing, the Company will not issue (or enter into any agreement to issue) any shares of Common Stock or Common Stock equivalents, subject to certain exceptions.

The closing of the offering described above is subject to satisfaction of specified customary closing conditions.

The foregoing summaries of the offerings, the securities to be issued in connection therewith, the Purchase Agreement, the Series E Pre-Funded Warrants and Series F Warrants do not purport to be complete and are qualified

in their entirety by reference to the definitive transaction documents. Copies of the form of Purchase Agreement, the Form of Series E Pre-Funded Warrant and the Form of Series F Warrant are attached hereto as Exhibits 10.1, 10.2 and 10.3, respectively, and are incorporated herein by reference.

Item 3.02 Unregistered Sales of Equity Securities

Please see the disclosure regarding the Series F Warrants and the Series F Warrant Shares set forth under Item 1.01, which is incorporated by reference into this Item 3.02.

Item 9.01 Financial Statements and Exhibits

(d) Exhibits

<u>Exhibit No.</u>	<u>Description</u>
5.1	Opinion of Sheppard, Mullin, Richter & Hampton LLP.
10.1	Securities Purchase Agreement, dated August 20, 2019, by and between Trovogene, Inc. and the Purchaser.
10.2	Form of Series E Pre-Funded Warrant
10.3	Form of Series F Warrant
23.1	Consent of Sheppard, Mullin, Richter & Hampton LLP (included in Exhibit 5.1 hereto).

SIGNATURE

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

Dated: August 21, 2019

TROVAGENE, INC.

By: /s/ Thomas Adams
Thomas Adams
Chief Executive Officer

August 21, 2019

VIA ELECTRONIC MAIL

Trovagene, Inc.
11055 Flintkote Avenue
San Diego, CA 92121

Ladies and Gentlemen:

You have requested our opinion with respect to certain matters in connection with the offering by Trovagene, Inc., a Delaware corporation (the “**Company**”), of (i) 271,744 shares (the “**Shares**”) of common stock of the Company (the “**Common Stock**”) and (ii) Series E Warrants (the “**Series E Warrants**”) to purchase 456,058 shares of Common Stock (the “**Series E Warrant Shares**”), all pursuant to a Registration Statement on Form S-3 (Registration Statement No. 333-232321) (the “**Registration Statement**”), filed with the Securities and Exchange Commission (the “**Commission**”) under the Securities Act of 1933, as amended (the “**Act**”), the prospectus included within the Registration Statement (the “**Base Prospectus**”), and the prospectus supplement dated August 21, 2019, filed with the Commission pursuant to Rule 424(b) of the rules and regulations of the Act (together with the Base Prospectus, the “**Prospectus**.”) The Shares and Series E Warrants are to be sold by the Company as described in the Registration Statement and the Prospectus.

This opinion letter is being delivered in accordance with the requirements of Item 601(b)(5)(i) of Regulation S-K under the Securities Act, and no opinion is expressed herein as to any matter pertaining to the contents of the Registration Statement.

In connection with the issuance of this opinion letter, we have examined originals or copies, certified or otherwise identified to our satisfaction, of:

- a. the Registration Statement, including the prospectus contained therein and all exhibits thereto;
- b. the Prospectus;
- c. a specimen certificate representing the Shares;
- d. the Series E Warrant Certificate;
- e. the Amended and Restated Certificate of Incorporation of the Company, as amended and presently in effect (the “Charter”);
- f. the Bylaws of the Company, as presently in effect (the “Bylaws”); and
- g. certain resolutions adopted by the Board of Directors of the Company relating to the issuance of the Shares, the Series E Warrants and the Series E Warrant Shares.

We have also examined originals or copies, certified or otherwise identified to our satisfaction, of such records of the Company and such agreements, certificates and receipts of public officials, certificates of officers or other representatives of the Company and others, and such other documents as we have deemed necessary or appropriate as a basis for the opinions stated below.

In our examination, we have assumed the genuineness of all signatures, including endorsements, the legal capacity and competency of all natural persons, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as facsimile, electronic, certified or photostatic copies, and the authenticity of the originals of such copies. As to any facts relevant to the opinions stated herein that we did not independently establish or verify, we have relied upon statements and representations of officers and other representatives of the Company and others and of public officials.

For the purposes of this opinion letter, we have assumed that at the time of issuance of each Series E Warrant Share, the Charter, the Bylaws and the Series E Warrant, as applicable, will not have been modified or amended and will be in full force and effect. In addition, it is understood that this opinion is to be used only in connection with the offer and sale of the securities being registered while the Registration Statement is effective under the Securities Act.

Based upon the foregoing and subject to the qualifications and assumptions stated herein, we are of the following opinions:

1. the Shares, when sold and issued in accordance with the Registration Statement and the Prospectus, will be validly issued, fully paid and nonassessable;
2. provided that the Series E Warrants have been duly executed and delivered by the Company to the purchaser thereof against payment therefor, the Series E Warrants, when issued and sold as contemplated in the Registration Statement and the Prospectus will be valid and legally binding obligations of the Company, enforceable against the Company in accordance with their terms, and
3. the Series E Warrant Shares, when issued and paid for in accordance with the terms of the Series E Warrants, will be validly issued, fully paid and nonassessable.

The opinion which we render herein is limited to those matters governed by the General Corporation Law of the State of Delaware (the "DGCL") as of the date hereof. Our opinion expressed herein is as of the date hereof, and we assume no obligation to revise or supplement the opinion rendered herein should the above-referenced laws be changed by legislative or regulatory action, judicial decision or otherwise. We express no opinion as to whether, or the extent to which, the laws of any particular jurisdiction apply to the subject matter hereof.

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

We hereby consent to the filing of this opinion as an exhibit to the Company's current report on Form 8-K, dated August 21, 2019, which is incorporated by reference into the Registration Statement. We also hereby consent to the reference to our firm under the heading "Legal Matters" in the Registration Statement. In giving this consent, we do not thereby admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act or the General Rules and Regulations under the Securities Act.

This opinion letter is rendered as of the date first written above and we disclaim any obligation to advise you of facts, circumstances, events or developments which hereafter may be brought to our attention and which may alter, affect or modify the opinion expressed herein. Our opinion is expressly limited to the matters set forth above and we render no opinion, whether by implication or otherwise, as to any other matters relating to the Company, the Shares, the Series E Warrant Shares or any other agreements or transactions that may be related thereto or contemplated thereby. We are expressing no opinion as to any obligations that parties other than the Company may have under or in respect of the Shares, the Warrant Shares or as to the effect that their performance of such obligations may have upon any of the matters referred to above. No opinion may be implied or inferred beyond the opinion expressly stated above.

Very truly yours,

/s/ Sheppard, Mullin, Richter & Hampton LLP

SHEPPARD, MULLIN, RICHTER & HAMPTON LLP

SECURITIES PURCHASE AGREEMENT

This **SECURITIES PURCHASE AGREEMENT** (this “**Agreement**”), dated as of August 20, 2019, is by and among Trovagene, Inc., a Delaware corporation with headquarters located at 11055 Flintkote Avenue, Suite B, San Diego, CA 92121 (the “**Company**”), and Lincoln Park Capital Fund, LLC, an Illinois limited liability company (the “**Buyer**”).

RECITALS

A. The Buyer wishes to purchase, and the Company wishes to sell, upon the terms and subject conditions stated in this Agreement, (i) (X) 271,744 shares of Common Stock (as defined herein) (collectively, the “**Common Shares**”), and (Y) a Series E Warrant, in the form attached hereto as Exhibit A-1 (the “**Series E Warrant**”), to initially purchase an aggregate of up to 456,058 shares of Common Stock (collectively, the “**Series E Warrant Shares**”, and, together with the Series E Warrant, the “**Series E Securities**”), at an exercise price of \$0.01 per share, in each case pursuant to the Company’s shelf registration statement on Form S-3 (Registration Number 333-232321) (the “**Registration Statement**”), which has been declared effective in accordance with the Securities Act of 1933, as amended (the “**1933 Act**”), by the United States Securities and Exchange Commission (the “**SEC**”), and (ii) a Series F Warrant, in the form attached hereto as Exhibit A-2 (the “**Series F Warrant**”, and together with the Series E Warrant, the “**Warrants**”), to initially purchase an aggregate of up to 727,802 shares of Common Stock (collectively, the “**Series F Warrant Shares**”, and together with the Series F Warrant, the “**Series F Securities**”, and collectively with the Series E Warrant Shares, the “**Warrant Shares**”), at an exercise price of \$1.936 per share, in reliance upon the exemption from securities registration afforded by Section 4(a)(2) of the Securities Act of 1933, and Rule 506(b) of Regulation D (“**Regulation D**”) as promulgated by the SEC under the 1933 Act.

B. The Common Shares, the Warrants and the Warrant Shares are collectively referred to herein as the “**Securities**”.

AGREEMENT

NOW, THEREFORE, in consideration of the premises and the mutual covenants contained herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Company and the Buyer hereby agree as follows:

1. PURCHASE AND SALE OF COMMON SHARES AND WARRANTS.

(a) Purchase of Common Shares and Warrants. Subject to the satisfaction (or waiver) of the conditions set forth in Sections 6 and 7 below, the Company shall issue and sell to the Buyer, and the Buyer agrees to purchase from the Company on the Closing Date (as defined below), (i) 271,744 Common Shares, (ii) the Series E Warrant to initially acquire an aggregate of up to 456,058 Series E Warrant Shares and (iii) the Series F Warrant to initially acquire an aggregate of up to 727,802 Series F Warrant Shares.

(b) Closing. The closing (the “**Closing**”) of the purchase of the Common Shares and the Warrants by the Buyer shall occur at the offices of Mintz, Levin, Cohn, Ferris, Glovsky and

Popeo, P.C., 666 Third Avenue, New York, NY 10017. The date and time of the Closing (the “**Closing Date**”) shall be 10:00 a.m., New York time, on the first (1st) Business Day (as defined below) on which the conditions to the Closing set forth in Sections 6 and 7 below are satisfied or waived (or such other date as is mutually agreed to by the Company and the Buyer). As used herein “**Business Day**” means any day other than a Saturday, Sunday or other day on which commercial banks in New York, New York are authorized or required by law to remain closed.

(c) Purchase Price. The aggregate gross purchase price for the Common Shares and the Warrants to be purchased by the Buyer hereunder shall be \$1,500,000 (the “**Purchase Price**”).

(d) Form of Payment; Deliveries. On the Closing Date, (i) the Buyer shall pay the Purchase Price (less the amount withheld pursuant to Section 4(g)) to the Company for the Common Shares and the Warrants to be issued and sold to the Buyer at the Closing, by wire transfer of immediately available funds in accordance with the Flow of Funds Letter (as defined below) and (ii) the Company shall (A) cause Philadelphia Stock Transfer, Inc. (together with any subsequent transfer agent, the “**Transfer Agent**”) through the Depository Trust Company (“**DTC**”) Fast Automated Securities Transfer Program, to credit 271,744 Common Shares to the Buyer’s or its designee’s balance account with DTC through its Deposit/Withdrawal at Custodian system, (B) deliver to the Buyer the Series E Warrant pursuant to which the Buyer shall have the right to initially acquire an aggregate of up to 456,058 Series E Warrant Shares, duly executed on behalf of the Company and registered in the name of the Buyer or its designee, and (C) deliver to the Buyer the Series F Warrant pursuant to which the Buyer shall have the right to initially acquire an aggregate of up to 727,802 Series F Warrant Shares, duly executed on behalf of the Company and registered in the name of the Buyer or its designee.

2. **BUYER’S REPRESENTATIONS AND WARRANTIES.**

The Buyer represents and warrants to the Company that, as of the date hereof and as of the Closing Date:

(a) Organization; Authority. The Buyer is an entity duly organized, validly existing and in good standing under the laws of the jurisdiction of its organization with the requisite power and authority to enter into and to consummate the transactions contemplated by this Agreement and otherwise to carry out its obligations hereunder.

(b) Validity; Enforcement. This Agreement has been duly and validly authorized, executed and delivered on behalf of the Buyer and shall constitute the legal, valid and binding obligations of the Buyer enforceable against the Buyer in accordance with its terms, except as such enforceability may be limited by general principles of equity or to applicable bankruptcy, insolvency, reorganization, moratorium, liquidation and other similar laws relating to, or affecting generally, the enforcement of applicable creditors’ rights and remedies.

(c) No Public Sale or Distribution of Series F Securities. The Buyer is acquiring the Series F Securities for its own account and not with a view towards, or for resale in connection with, the public sale or distribution thereof in violation of applicable securities laws, except pursuant to sales registered or exempted under the 1933 Act; provided, however, by making the representations herein, the Buyer does not agree, or make any representation or warranty, to hold

any of the Securities for any minimum or other specific term and reserves the right to dispose of the Securities at any time in accordance with or pursuant to a registration statement or an exemption under the 1933 Act. The Buyer is acquiring the Securities hereunder in the ordinary course of its business. The Buyer does not presently have any agreement or understanding, directly or indirectly, with any Person to distribute any of the Securities in violation of applicable securities laws.

(d) Accredited Investor Status. At the time the Buyer was offered the Securities, it was, and as of the date hereof it is, an “accredited investor” as defined in Rule 501(a)(1), (a)(2), (a)(3), (a)(7) or (a)(8) under the 1933 Act.

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

(f) Reliance on Exemptions. The Buyer understands that the Series F Securities are being offered and sold to it in reliance on specific exemptions from the registration requirements of United States federal and state securities laws and that the Company is relying in part upon the truth and accuracy of, and the Buyer’s compliance with, the representations, warranties, agreements, acknowledgments and understandings of the Buyer set forth herein in order to determine the availability of such exemptions and the eligibility of such Buyer to acquire the Securities.

(g) Information. The Buyer and its advisors, if any, have been furnished with all materials relating to the business, finances and operations of the Company and materials relating to the offer and sale of the Securities which have been requested by the Buyer. The Buyer and its advisors, if any, have been afforded the opportunity to ask questions of the Company. Neither such inquiries nor any other due diligence investigations conducted by the Buyer or its advisors, if any, or its representatives shall modify, amend or affect the Buyer’s right to rely on the Company’s representations and warranties contained herein or any representations and warranties contained in any other Transaction Document or any other document or instrument executed and/or delivered in connection with this Agreement or the consummation of the transaction contemplated hereby. The Buyer has sought such accounting, legal and tax advice as it has considered necessary to make an informed investment decision with respect to its acquisition of the Securities.

(h) No Governmental Review. The Buyer understands that no United States federal or state agency or any other government or governmental agency has passed on or made any recommendation or endorsement of the Securities or the fairness or suitability of the investment in the Securities nor have such authorities passed upon or endorsed the merits of the offering of the Securities.

(i) Transfer or Resale. The Buyer understands that except as provided in Section 4(g) hereof: (i) the Series F Securities have not been and are not being registered under the 1933 Act or any state securities laws, and may not be offered for sale, sold, assigned or transferred unless

(A) subsequently registered thereunder, (B) the Buyer shall have delivered to the Company (if requested by the Company) an opinion of counsel to the Buyer, in a form reasonably acceptable to the Company, to the effect that the Series F Warrant or the Series F Warrant Shares to be sold, assigned or transferred may be sold, assigned or transferred pursuant to an exemption from such registration, or (C) the Buyer provides the Company with reasonable assurance that the Series F Warrant or Series F Warrant Shares can be sold, assigned or transferred pursuant to Rule 144 or Rule 144A promulgated under the 1933 Act (or a successor rule thereto) (collectively, "**Rule 144**"); (ii) any sale of the Series F Warrant or Series F Warrant Shares made in reliance on Rule 144 may be made only in accordance with the terms of Rule 144, and further, if Rule 144 is not applicable, any resale of the Series F Warrant or Series F Warrant Shares under circumstances in which the seller (or the Person (as defined below) through whom the sale is made) may be deemed to be an underwriter (as that term is defined in the 1933 Act) may require compliance with some other exemption under the 1933 Act or the rules and regulations of the SEC promulgated thereunder; and (iii) neither the Company nor any other Person is under any obligation to register the Series F Warrant or any of the Series F Warrant Shares under the 1933 Act or any state securities laws or to comply with the terms and conditions of any exemption thereunder.

(j) Residency. The Buyer is a resident of the State of Illinois.

(k) Certain Trading Activities. The Buyer represents and warrants to the Company that at no time prior to the date of this Agreement has any of the Buyer, its agents, representatives or affiliates engaged in or effected, in any manner whatsoever, directly or indirectly, any (i) "short sale" (as such term is defined in Rule 200 of Regulation SHO of the Securities Exchange Act of 1934, as amended (the "**1934 Act**")) of the Common Stock or (ii) hedging transaction, which establishes a net short position with respect to the Common Stock.

(l) General Solicitation. The Buyer is not purchasing the Series F Securities as a result of any advertisement, article, notice or other communication regarding the Securities published in any newspaper, magazine or similar media or broadcast over television or radio or presented at any seminar.

(m) Manipulation of Price. Since the time that such Buyer was first contacted by the Company or its agent regarding the investment in the Company contemplated herein, the Buyer has not, and, to the knowledge of the Buyer, no Person acting on its behalf has, directly or indirectly, (i) taken any action designed to cause or to result in the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of any of the Securities, (ii) sold, bid for, purchased, or paid any compensation for soliciting purchases of, any of the Securities, or (iii) paid or agreed to pay to any Person any compensation for soliciting another to purchase any other securities of the Company.

3. REPRESENTATIONS AND WARRANTIES OF THE COMPANY.

The Company represents and warrants to the Buyer that, as of the date hereof and as of the Closing Date:

(a) Organization and Qualification. Each of the Company and each of its Subsidiaries are entities duly organized and validly existing and in good standing under the laws of the

jurisdiction in which they are formed, and have the requisite power and authority to own their properties and to carry on their business as now being conducted and as presently proposed to be conducted. Each of the Company and each of its Subsidiaries is duly qualified as a foreign entity to do business and is in good standing in every jurisdiction in which its ownership of property or the nature of the business conducted by it makes such qualification necessary, except to the extent that the failure to be so qualified or be in good standing would not reasonably be expected to have a Material Adverse Effect (as defined below). As used in this Agreement, “**Material Adverse Effect**” means any material adverse effect on (i) the business, properties, assets, liabilities, operations (including results thereof), condition (financial or otherwise) or prospects of the Company or any Subsidiary, individually or taken as a whole, (ii) the transactions contemplated hereby or in any of the other Transaction Documents or any other agreements or instruments to be entered into in connection herewith or therewith or (iii) the authority or ability of the Company to perform any of their respective obligations under any of the Transaction Documents (as defined below). All of the direct and indirect Subsidiaries of the Company are set forth in the SEC Documents. The Company owns, directly or indirectly, all of the capital stock or other equity interests of each Subsidiary free and clear of any Liens, and all of the issued and outstanding shares of capital stock of each Subsidiary are validly issued and are fully paid, non-assessable and free of preemptive and similar rights to subscribe for or purchase securities. If the Company has no Subsidiaries, all other references to the Subsidiaries or any of them in the Transaction Documents shall be disregarded. “**Subsidiaries**” means any Person in which the Company, directly or indirectly, (A) owns any of the outstanding capital stock or holds any equity or similar interest of such Person or (B) controls or operates all or any part of the business, operations or administration of such Person, and each of the foregoing, is individually referred to herein as a “**Subsidiary**”.

(b) Authorization; Enforcement; Validity. The Company has the requisite power and authority to enter into and perform its obligations under this Agreement and the other Transaction Documents and to issue the Securities in accordance with the terms hereof and thereof. The execution and delivery of this Agreement and the other Transaction Documents by the Company and the consummation by the Company of the transactions contemplated hereby and thereby (including, without limitation, the offer and sale of the Common Shares, the offer and sale of the Series E Securities and the reservation for issuance and issuance of the Series E Warrant Shares issuable upon exercise of the Series E Warrant, the offer and sale of the Series F Securities and the reservation for issuance and issuance of the Series F Warrant Shares issuable upon exercise of the Series F Warrant) have been duly authorized by the Company’s board of directors and (other than (i) the filing with the SEC of the prospectus supplement relating to the offer and sale of the Common Shares and the Series E Securities pursuant to Rule 424(b) under the 1933 Act (the “**Prospectus Supplement**”) supplementing the base prospectus forming part of the Registration Statement (the “**Prospectus**”), (ii) the filing of a Form D with the SEC relating to the offer and sale of the Series F Securities pursuant to Regulation D, (iii) the filing of a Notice of Additional Listing with The Nasdaq Capital Market (the “**Principal Market**”) and (iv) any other filings as may be required by any state securities authorities) no further filing, consent or authorization is required by the Company, its board of directors or its stockholders or other governing body. This Agreement has been, and the other Transaction Documents will be prior to the Closing, duly executed and delivered by the Company, and each constitutes the legal, valid and binding obligations of the Company, enforceable against the Company in accordance with its respective terms, except as such enforceability may be limited by general principles of equity or applicable bankruptcy, insolvency, reorganization, moratorium, liquidation or similar laws relating to, or

affecting generally, the enforcement of applicable creditors' rights and remedies and except as rights to indemnification and to contribution may be limited by federal or state securities law. "**Transaction Documents**" means, collectively, this Agreement, the Warrants, the Irrevocable Transfer Agent Instructions (as defined below) and each of the other agreements and instruments entered into or delivered by any of the parties hereto in connection with the transactions contemplated hereby and thereby, as may be amended from time to time.

(c) Issuance of Securities; Registration Statement. The issuance of the Common Shares and the Warrants are duly authorized and, upon issuance and payment in accordance with the terms of the Transaction Documents shall be validly issued, fully paid and non-assessable and free from all preemptive or similar rights, mortgages, defects, claims, liens, pledges, charges, taxes, rights of first refusal, encumbrances, security interests and other encumbrances (collectively "**Liens**") with respect to the issuance thereof. As of the Closing, the Company shall have reserved from its duly authorized capital stock not less than 100% of the maximum number of shares of Common Stock issuable upon exercise of the Warrants (without taking into account any limitations on the exercise of the Warrants set forth in the Warrants). Upon exercise in accordance with the terms of the Series E Warrants, the Series E Warrant Shares, when issued, will be validly issued, fully paid and nonassessable and free from all preemptive or similar rights or Liens with respect to the issue thereof, with the holders being entitled to all rights accorded to a holder of Common Stock. Upon exercise in accordance with the terms of the Series F Warrants, the Series F Warrant Shares, when issued, will be validly issued, fully paid and nonassessable and free from all preemptive or similar rights or Liens with respect to the issue thereof, with the holders being entitled to all rights accorded to a holder of Common Stock. Upon receipt of the Common Shares and the Warrants at the Closing, upon receipt of Series E Warrant Shares upon exercise of the Series E Warrants and upon receipt of Series F Warrant Shares upon exercise of the Series F Warrants, the Buyer will have good and marketable title to such Common Shares, Warrants, Series E Warrant Shares and Series F Warrant Shares, respectively. Subject to the accuracy of the representations and warranties of the Buyer in this Agreement, the offer and sale of the Series F Securities to the Buyer under this Agreement and the Series F Warrant, as applicable, are exempt from registration under the 1933 Act under Section 4(a)(2) of the 1933 Act and Rule 506(b) of Regulation D. The offer and sale of all of the Common Shares and the Series E Securities to the Buyer under this Agreement and the Series E Warrants, as applicable, is registered under the 1933 Act pursuant to the Registration Statement, and all of the Common Shares and the Series E Securities are freely transferable and freely tradable by the Buyer without restriction. The Registration Statement was declared effective under the Securities Act by the SEC on June 13, 2016, and any post-effective amendment thereto has also been declared effective by the SEC under the 1933 Act. The Company has not received from the SEC any notice pursuant to Rule 401(g)(1) under the 1933 Act objecting to the use of the shelf registration statement form. No stop order suspending the effectiveness of the Registration Statement or any related registration statement filed by the Company with the SEC under Rule 462(b) under the 1933 Act is in effect and no proceedings for such purpose have been instituted or are pending or, to the knowledge of the Company, are contemplated or threatened by the SEC. At the time of (i) the initial filing of the Registration Statement with the SEC and (ii) the most recent amendment thereto for the purposes of complying with Section 10(a)(3) of the Securities Act (whether such amendment was by post-effective amendment, incorporated report filed pursuant to Section 13 or 15(d) of the 1934 Act or form of prospectus), the Company met the then applicable requirements for use of Form S-3 under the 1933 Act. The Company and the offer, issuance and sale of the Common Shares and the Series E Securities to the Buyer hereunder and

under the Series E Warrant, as applicable, meet the requirements for and comply with the applicable conditions set forth in Form S-3 under the Securities Act, including compliance with General Instructions I.A and I.B.6. of Form S-3. The Registration Statement and the offer, issuance and sale of the Common Shares and the Series E Securities as contemplated hereby and by the Series E Warrant, as applicable, meet the requirements of Rule 415(a)(1)(x) under the 1933 Act and comply in all material respects with said Rule. The Registration Statement is effective and available for the offer, issuance and sale of all of the Common Shares and the Series E Securities thereunder, and the Company has not received any notice that the SEC has issued or intends to issue a stop-order with respect to the Registration Statement or that the SEC otherwise has suspended or withdrawn the effectiveness of the Registration Statement, either temporarily or permanently, or intends or has threatened in writing to do so. The “Plan of Distribution” section under the Registration Statement permits the issuance and sale of the Common Shares and the Series E Securities hereunder and under the Series E Warrant, as applicable. At the time the Registration Statement and any amendment thereto became effective and on the date of this Agreement, the Registration Statement and any amendment thereto complied and complies in all material respects with the requirements of the 1933 Act and did not and does not contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein not misleading. The Prospectus and any amendment or supplements thereto (including, without limitation the Prospectus Supplement), at the time the Prospectus or any amendment or supplement thereto was issued and on the date of this Agreement, complied and complies in all material respects with the requirements of the 1933 Act and did not and does not contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading. At the earliest time after the filing of the Registration Statement that the Company or another offering participant made a bona fide offer (within the meaning of Rule 164(h)(2) under the 1933 Act) relating to the Common Shares and the Series E Securities, the Company was not and is not an “Ineligible Issuer” (as defined in Rule 405 under the 1933 Act). The Company has not distributed any offering material in connection with the offer or sale of the Common Shares and the Series E Securities, other than the Registration Statement, the Prospectus and the Prospectus Supplement.

(d) **No Conflicts.** The execution, delivery and performance of the Transaction Documents by the Company and the consummation by the Company of the transactions contemplated hereby and thereby (including, without limitation, the offer and sale of the Common Shares, the offer and sale of the Series E Securities and the reservation for issuance and issuance of the Series E Warrant Shares issuable upon exercise of the Series E Warrant, the offer and sale of the Series F Securities and the reservation for issuance and issuance of the Series F Warrant Shares issuable upon exercise of the Series F Warrant) will not (i) result in a violation of the Certificate of Incorporation (as defined below) (including, without limitation, any certificate of designation contained therein), Bylaws (as defined below), or the certificate of incorporation, certificate of formation, memorandum of association, articles of association, bylaws or other organizational documents of any of the Company’s Subsidiaries, or any capital stock or other securities of the Company or any of its Subsidiaries, (ii) conflict with, or constitute a default (or an event which with notice or lapse of time or both would become a default) in any respect under, or give to others any rights of termination, amendment, acceleration or cancellation of, any agreement, indenture or instrument to which the Company or any of its Subsidiaries is a party, or (iii) result in a violation of any law, rule, regulation, order, judgment or decree (including, without

limitation, foreign, federal and state securities laws and regulations and the rules and regulations of the Principal Market and including all applicable foreign, federal and state laws, rules and regulations) applicable to the Company or any of its Subsidiaries or by which any property or asset of the Company or any of its Subsidiaries is bound or affected.

(e) Consents. Neither the Company nor any Subsidiary is required to obtain any consent from, authorization or order of, or make any filing or registration with (other than (i) the filing with the SEC of the Prospectus Supplement relating to the offer, issuance and sale of the Common Shares and the Series E Securities to the Buyer, (ii) the filing with the SEC of a Form D relating to the offer, issuance and sale of the Series F Securities to the Buyer pursuant to Regulation D, (iii) the filing of a Notice of Additional Listing with the Principal Market and (iv) any other filings as may be required by any state securities authorities), any Governmental Entity (as defined below) or any regulatory or self-regulatory agency or any other Person in order for it to execute, deliver or perform any of its respective obligations under or contemplated by the Transaction Documents, in each case, in accordance with the terms hereof or thereof. All consents, authorizations, orders, filings and registrations which the Company or any Subsidiary is required to obtain pursuant to the preceding sentence have been or will be obtained or effected on or prior to the Closing Date, and neither the Company nor any of its Subsidiaries are aware of any facts or circumstances which might prevent the Company or any of its Subsidiaries from obtaining or effecting any of the registration, application or filings contemplated by the Transaction Documents. The Company is not currently in violation of the requirements of the Principal Market and has no knowledge of any facts or circumstances which could reasonably lead to delisting or suspension of the Common Stock in the foreseeable future. **“Governmental Entity”** means any nation, state, county, city, town, village, district, or other political jurisdiction of any nature, federal, state, local, municipal, foreign, or other government, governmental or quasi-governmental authority of any nature (including any governmental agency, branch, department, official, or entity and any court or other tribunal), multi-national organization or body; or body exercising, or entitled to exercise, any administrative, executive, judicial, legislative, police, regulatory, or taxing authority or power of any nature or instrumentality of any of the foregoing, including any entity or enterprise owned or controlled by a government or a public international organization or any of the foregoing.

(f) Acknowledgment Regarding Buyer’s Purchase of Securities. The Company acknowledges and agrees that the Buyer is acting solely in the capacity of an arm’s length purchaser with respect to the Transaction Documents and the transactions contemplated hereby and thereby and that the Buyer is not (i) an officer or director of the Company or any of its Subsidiaries, (ii) an “affiliate” (as defined in Rule 144) of the Company or any of its Subsidiaries or (iii) to its knowledge, a “beneficial owner” of more than 10% of the shares of Common Stock (as defined for purposes of Rule 13d-3 of the 1934 Act). The Company further acknowledges that the Buyer is not acting as a financial advisor or fiduciary of the Company or any of its Subsidiaries (or in any similar capacity) with respect to the Transaction Documents and the transactions contemplated hereby and thereby, and any advice given by the Buyer or any of its representatives or agents in connection with the Transaction Documents and the transactions contemplated hereby and thereby is merely incidental to the Buyer’s purchase of the Securities. The Company further represents to the Buyer that the Company’s decision to enter into the Transaction Documents has been based solely on the independent evaluation by the Company and its representatives.

(g) No General Solicitation; Placement Agent's Fees. Neither the Company, nor any of its Subsidiaries or affiliates, nor any Person acting on its or their behalf, has engaged in any form of general solicitation or general advertising (within the meaning of Regulation D) in connection with the offer, issuance and sale of the Series F Securities. The Company shall be responsible for the payment of any placement agent's fees, financial advisory fees, or brokers' commissions relating to or arising out of the transactions contemplated by the Transaction Documents. The Company shall pay, and hold the Buyer harmless against, any liability, loss or expense (including, without limitation, attorney's fees and out-of-pocket expenses) arising in connection with any such claim. Neither the Company nor any of its Subsidiaries has engaged any placement agent or other agent in connection with the offer and sale of any of the Securities contemplated by the Transaction Documents.

(h) No Integrated Offering. None of the Company, its Subsidiaries or any of their affiliates, nor any Person acting on their behalf has, directly or indirectly, made any offers or sales of any security or solicited any offers to buy any security, under circumstances that would cause the issuance of any of the Securities to require approval of stockholders of the Company under any applicable stockholder approval laws, rules or regulations, including, without limitation, under the rules of any exchange or automated quotation system on which any securities of the Company are listed or designated for quotation. None of the Company, its Subsidiaries or any of their affiliates, nor any Person acting on their behalf has, directly or indirectly, made any offers, issuances or sales of any security (including, without limitation, the offer, issuance and sale of the Common Shares and the Series E Securities to the Buyer hereunder and under the Series E Warrant, as applicable) or solicited any offers to buy any security (including, without limitation, any of the Common Shares, the Series E Warrant or any of the Series E Warrant Shares), under circumstances that would require registration of the offer, issuance or sale of the Series F Warrant or any of the Series F Warrant Shares under the 1933 Act, whether through integration with the offering of the Common Shares and the Series E Securities to the Buyer hereunder and under the Series E Warrant, as applicable, pursuant to the Registration Statement, any prior offering of securities of the Company or otherwise.

(i) Dilutive Effect. The Company understands and acknowledges that the number of Series E Warrant Shares and the number of Series F Warrant Shares will increase in certain circumstances. The Company further acknowledges that its obligation to issue (i) the Series E Warrant Shares upon exercise of the Series E Warrant in accordance with this Agreement and the Series E Warrant and (ii) the Series F Warrant Shares upon exercise of the Series F Warrant in accordance with this Agreement and the Series F Warrant, in each case is absolute and unconditional regardless of the dilutive effect that such issuance may have on the ownership interests of other stockholders of the Company.

(j) Application of Takeover Protections; Rights Agreement. The Company and its board of directors have taken all necessary action, if any, in order to render inapplicable any control share acquisition, interested stockholder, business combination, poison pill (including, without limitation, any distribution under a rights agreement), stockholder rights plan or other similar anti- takeover provision under the Certificate of Incorporation, Bylaws or other organizational documents or the laws of the jurisdiction of its incorporation or otherwise which is or could become applicable to the Buyer as a result of the transactions contemplated by this Agreement, including, without limitation, the Company's issuance of the Securities and the Buyer's ownership of the

Securities. The Company and its board of directors have taken all necessary action, if any, in order to render inapplicable any stockholder rights plan or similar arrangement relating to accumulations of beneficial ownership of shares of Common Stock or a change in control of the Company or any of its Subsidiaries.

(k) SEC Documents; Financial Statements. During the two (2) years prior to the date hereof, the Company has timely filed all reports, schedules, forms, proxy statements, statements and other documents required to be filed by it with the SEC pursuant to the reporting requirements of the 1934 Act (all of the foregoing filed prior to the date hereof and all exhibits and appendices included therein and financial statements, notes and schedules thereto and documents incorporated by reference therein being hereinafter referred to as the “**SEC Documents**”). The Company has delivered or has made available to the Buyer or its representatives true, correct and complete copies of each of the SEC Documents not available on the EDGAR system. As of their respective dates, the SEC Documents complied in all material respects with the requirements of the 1934 Act and the rules and regulations of the SEC promulgated thereunder applicable to the SEC Documents, and none of the SEC Documents, at the time they were filed with the SEC, contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading. As of their respective dates, the financial statements of the Company included in the SEC Documents complied in all material respects with applicable accounting requirements and the published rules and regulations of the SEC with respect thereto as in effect as of the time of filing. Such financial statements have been prepared in accordance with generally accepted accounting principles (“**GAAP**”), consistently applied, during the periods involved (except (i) as may be otherwise indicated in such financial statements or the notes thereto, or (ii) in the case of unaudited interim statements, to the extent they may exclude footnotes or may be condensed or summary statements) and fairly present in all material respects the financial position of the Company as of the dates thereof and the results of its operations and cash flows for the periods then ended (subject, in the case of unaudited statements, to normal year-end audit adjustments which will not be material, either individually or in the aggregate). The reserves, if any, established by the Company or the lack of reserves, if applicable, are reasonable based upon facts and circumstances known by the Company on the date hereof and there are no loss contingencies that are required to be accrued by the Statement of Financial Accounting Standard No. 5 of the Financial Accounting Standards Board which are not provided for by the Company in its financial statements or otherwise. No other information provided by or on behalf of the Company to the Buyer which is not included in the SEC Documents (including, without limitation, information in the disclosure schedules to this Agreement) contains any untrue statement of a material fact or omits to state any material fact necessary in order to make the statements therein not misleading, in the light of the circumstance under which they are or were made. The Company is not currently contemplating to amend or restate any of the financial statements (including, without limitation, any notes or any letter of the independent accountants of the Company with respect thereto) included in the SEC Documents (the “**Financial Statements**”), nor is the Company currently aware of facts or circumstances which would require the Company to amend or restate any of the Financial Statements, in each case, in order for any of the Financials Statements to be in compliance with GAAP and the rules and regulations of the SEC. The Company has not been informed by its independent accountants that they recommend that the Company amend or restate any of the Financial Statements or that there is any need for the Company to amend or restate any of the Financial Statements.

(l) Absence of Certain Changes. Since the date of the Company's most recent audited financial statements contained in a Form 10-K, there has been no material adverse change and no material adverse development in the business, assets, liabilities, properties, operations (including results thereof), condition (financial or otherwise) or prospects of the Company or any of its Subsidiaries. Since the date of the Company's most recent audited financial statements contained in a Form 10-K, neither the Company nor any of its Subsidiaries has (i) declared or paid any dividends, (ii) sold any assets, individually or in the aggregate, outside of the ordinary course of business or (iii) made any capital expenditures, individually or in the aggregate, outside of the ordinary course of business. Neither the Company nor any of its Subsidiaries has taken any steps to seek protection pursuant to any law or statute relating to bankruptcy, insolvency, reorganization, receivership, liquidation or winding up, nor does the Company or any Subsidiary have any knowledge or reason to believe that any of their respective creditors intend to initiate involuntary bankruptcy proceedings or any actual knowledge of any fact which would reasonably lead a creditor to do so. The Company and its Subsidiaries, individually and on a consolidated basis, are not as of the date hereof, and after giving effect to the transactions contemplated hereby to occur at the Closing, will not be Insolvent (as defined below). For purposes of this Section 3(l), "**Insolvent**" means, (i) with respect to the Company and its Subsidiaries, on a consolidated basis, (A) the present fair saleable value of the Company's and its Subsidiaries' assets is less than the amount required to pay the Company's and its Subsidiaries' total Indebtedness (as defined below), (B) the Company and its Subsidiaries are unable to pay their debts and liabilities, subordinated, contingent or otherwise, as such debts and liabilities become absolute and matured or (C) the Company and its Subsidiaries intend to incur or believe that they will incur debts that would be beyond their ability to pay as such debts mature; and (ii) with respect to the Company and each Subsidiary, individually, (A) the present fair saleable value of the Company's or such Subsidiary's (as the case may be) assets is less than the amount required to pay its respective total Indebtedness, (B) the Company or such Subsidiary (as the case may be) is unable to pay its respective debts and liabilities, subordinated, contingent or otherwise, as such debts and liabilities become absolute and matured or (C) the Company or such Subsidiary (as the case may be) intends to incur or believes that it will incur debts that would be beyond its respective ability to pay as such debts mature. Neither the Company nor any of its Subsidiaries has engaged in any business or in any transaction, and is not about to engage in any business or in any transaction, for which the Company's or such Subsidiary's remaining assets constitute unreasonably small capital with which to conduct the business in which it is engaged as such business is now conducted and is proposed to be conducted.

(m) No Undisclosed Events, Liabilities, Developments or Circumstances. No event, liability, development or circumstance has occurred or exists, or is reasonably expected to exist or occur with respect to the Company, any of its Subsidiaries or any of their respective businesses, properties, liabilities, prospects, operations (including results thereof) or condition (financial or otherwise), that (i) would be required to be disclosed by the Company under applicable securities laws on a registration statement on Form S-1 filed with the SEC relating to an issuance and sale by the Company of its Common Stock and which has not been publicly announced, (ii) could have a material adverse effect on the Buyer's investment hereunder or (iii) could have a Material Adverse Effect.

(n) Conduct of Business; Regulatory Permits. Neither the Company nor any of its Subsidiaries is in violation of any term of or in default under its Certificate of Incorporation, any certificate of designation, preferences or rights of any other outstanding series of preferred stock

of the Company, or any organizational charter, certificate of formation, memorandum of association, articles of association, certificate of incorporation or bylaws of any of the Subsidiaries. Neither the Company nor any of its Subsidiaries is in violation of any judgment, decree or order or any statute, ordinance, rule or regulation applicable to the Company or any of its Subsidiaries, and neither the Company nor any of its Subsidiaries will conduct its business in violation of any of the foregoing, except in all cases for possible violations which could not, individually or in the aggregate, have a Material Adverse Effect. The Company and each of its Subsidiaries possess all certificates, authorizations and permits issued by the appropriate regulatory authorities necessary to conduct their respective businesses, except where the failure to possess such certificates, authorizations or permits would not have, individually or in the aggregate, a Material Adverse Effect, and neither the Company nor any such Subsidiary has received any notice of proceedings relating to the revocation or modification of any such certificate, authorization or permit. There is no agreement, commitment, judgment, injunction, order or decree binding upon the Company or any of its Subsidiaries or to which the Company or any of its Subsidiaries is a party which has or would reasonably be expected to have the effect of prohibiting or materially impairing any business practice of the Company or any of its Subsidiaries, any acquisition of property by the Company or any of its Subsidiaries or the conduct of business by the Company or any of its Subsidiaries as currently conducted other than such effects, individually or in the aggregate, which have not had and would not reasonably be expected to have a Material Adverse Effect on the Company or any of its Subsidiaries.

(o) Foreign Corrupt Practices. Neither the Company, any of its Subsidiaries or to the knowledge of the Company, any director, officer, agent, employee, nor any other person acting for or on behalf of the foregoing (individually and collectively, a “**Company Affiliate**”) have violated the U.S. Foreign Corrupt Practices Act (the “**FCPA**”) or any other applicable anti-bribery or anti-corruption laws, nor has any Company Affiliate offered, paid, promised to pay, or authorized the payment of any money, or offered, given, promised to give, or authorized the giving of anything of value, to any officer, employee or any other person acting in an official capacity for any Governmental Entity to any political party or official thereof or to any candidate for political office (individually and collectively, a “**Government Official**”) or to any person under circumstances where such Company Affiliate knew or was aware of a high probability that all or a portion of such money or thing of value would be offered, given or promised, directly or indirectly, to any Government Official, for the purpose of:

(i) (A) influencing any act or decision of such Government Official in his/her official capacity, (B) inducing such Government Official to do or omit to do any act in violation of his/her lawful duty, (C) securing any improper advantage, or (D) inducing such Government Official to influence or affect any act or decision of any Governmental Entity, or

(ii) assisting the Company or its Subsidiaries in obtaining or retaining business for or with, or directing business to, the Company or its Subsidiaries.

(p) Sarbanes-Oxley Act. The Company and each Subsidiary is in compliance in all material respects with any and all applicable requirements of the Sarbanes-Oxley Act of 2002, as amended, and any and all applicable rules and regulations promulgated by the SEC thereunder.

(q) Transactions With Affiliates. Except as disclosed in the SEC Documents, no current or former employee, partner, director, officer or stockholder (direct or indirect) of the Company or its Subsidiaries, or any associate, or, to the knowledge of the Company, any affiliate of any thereof, or any relative with a relationship no more remote than first cousin of any of the foregoing, is presently, or has ever been, (i) a party to any transaction with the Company or its Subsidiaries (including any contract, agreement or other arrangement providing for the furnishing of services by, or rental of real or personal property from, or otherwise requiring payments to, any such director, officer or stockholder or such associate or affiliate or relative Subsidiaries (other than for ordinary course services as employees, officers or directors of the Company or any of its Subsidiaries)) or (ii) the direct or indirect owner of an interest in any corporation, firm, association or business organization which is a competitor, supplier or customer of the Company or its Subsidiaries (except for a passive investment (direct or indirect) in less than 5% of the common stock of a company whose securities are traded on or quoted through an Eligible Market (as defined below)), nor does any such Person receive income from any source other than the Company or its Subsidiaries which relates to the business of the Company or its Subsidiaries or should properly accrue to the Company or its Subsidiaries. No employee, officer, stockholder or director of the Company or any of its Subsidiaries or member of his or her immediate family is indebted to the Company or its Subsidiaries, as the case may be, nor is the Company or any of its Subsidiaries indebted (or committed to make loans or extend or guarantee credit) to any of them, other than (i) for payment of salary for services rendered, (ii) reimbursement for reasonable expenses incurred on behalf of the Company, and (iii) for other standard employee benefits made generally available to all employees or executives (including stock option agreements outstanding under any stock option plan approved by the Board of Directors of the Company).

(r) Equity Capitalization.

(i) Definitions:

(A) “**Common Stock**” means (x) the Company’s shares of common stock, \$0.0001 par value per share, and (y) any capital stock into which such common stock shall have been changed or any share capital resulting from a reclassification of such common stock.

(B) “**Preferred Stock**” means (x) the Company’s blank check preferred stock, \$0.001 par value per share, the terms of which may be designated by the board of directors of the Company in a certificate of designations and (y) any capital stock into which such preferred stock shall have been changed or any share capital resulting from a reclassification of such preferred stock (other than a conversion of such preferred stock into Common Stock in accordance with the terms of such certificate of designations).

(ii) Authorized and Outstanding Capital Stock. As of the date hereof, the authorized capital stock of the Company consists of (A) 150,000,000 shares of Common Stock, of which, 5,707,675 are issued and outstanding (excluding the Common Shares) and 5,329,236 shares are reserved for issuance pursuant to Convertible Securities (as defined below) (excluding the Warrant Shares issuable upon exercise of the Warrants) exercisable or exchangeable for, or convertible into, shares of Common Stock and (B) 20,000,000

shares of Preferred Stock, 277,100 are designated as Series A Convertible Preferred Stock, 60,600 of which are issued and outstanding, 8,860 are designated as Series B Convertible Preferred Stock, 0 of which are issued and outstanding and 200,000 are designated as Series C Convertible Preferred Stock, 0 of which are issued and outstanding. 0 shares of Common Stock are held in the treasury of the Company.

(iii) Valid Issuance; Available Shares; Affiliates. All of such outstanding shares are duly authorized and have been, or upon issuance will be, validly issued and are fully paid and nonassessable. Schedule 3(r)(iii) sets forth the number of shares of Common Stock that are (A) reserved for issuance pursuant to Convertible Securities (as defined below) (other than the Warrants) and (B) that are, as of the date hereof, owned by Persons who are “affiliates” (as defined in Rule 405 of the 1933 Act and calculated based on the assumption that only officers, directors and holders of at least 10% of the Company’s issued and outstanding Common Stock are “affiliates” without conceding that any such Persons are “affiliates” for purposes of federal securities laws) of the Company or any of its Subsidiaries. To the Company’s knowledge, no Person owns 10% or more of the Company’s issued and outstanding shares of Common Stock (calculated based on the assumption that all Convertible Securities (as defined below), whether or not presently exercisable or convertible, have been fully exercised or converted (as the case may be) taking account of any limitations on exercise or conversion (including “blockers”) contained therein without conceding that such identified Person is a 10% stockholder for purposes of federal securities laws).

(iv) Existing Securities; Obligations. Except as disclosed in the SEC Documents: (A) none of the Company’s or any Subsidiary’s shares, interests or capital stock is subject to preemptive rights or any other similar rights or Liens suffered or permitted by the Company or any Subsidiary; (B) there are no outstanding options, warrants, scrip, rights to subscribe to, calls or commitments of any character whatsoever relating to, or securities or rights convertible into, or exercisable or exchangeable for, any shares, interests or capital stock of the Company or any of its Subsidiaries, or contracts, commitments, understandings or arrangements by which the Company or any of its Subsidiaries is or may become bound to issue additional shares, interests or capital stock of the Company or any of its Subsidiaries or options, warrants, scrip, rights to subscribe to, calls or commitments of any character whatsoever relating to, or securities or rights convertible into, or exercisable or exchangeable for, any shares, interests or capital stock of the Company or any of its Subsidiaries; (C) there are no agreements or arrangements under which the Company or any of its Subsidiaries is obligated to register the sale of any of their securities under the 1933 Act (except pursuant to this Agreement); (D) there are no outstanding securities or instruments of the Company or any of its Subsidiaries which contain any redemption or similar provisions, and there are no contracts, commitments, understandings or arrangements by which the Company or any of its Subsidiaries is or may become bound to redeem a security of the Company or any of its Subsidiaries; (E) there are no securities or instruments containing anti-dilution or similar provisions that will be triggered by the issuance of any or all of the Securities; and (F) neither the Company nor any Subsidiary has any stock appreciation rights or “phantom stock” plans or agreements or any similar plan or agreement.

(v) Organizational Documents. The Company has furnished to the Buyer true, correct and complete copies of the Company's Certificate of Incorporation, as amended and as in effect on the date hereof (the "**Certificate of Incorporation**"), and the Company's bylaws, as amended and as in effect on the date hereof (the "**Bylaws**"), and the terms of all Convertible Securities and the material rights of the holders thereof in respect thereto.

(s) Indebtedness and Other Contracts. Neither the Company nor any of its Subsidiaries, (i) except as set forth in the SEC Documents, has any outstanding debt securities, notes, credit agreements, credit facilities or other agreements, documents or instruments evidencing Indebtedness of the Company or any of its Subsidiaries or by which the Company or any of its Subsidiaries is or may become bound, (ii) is a party to any contract, agreement or instrument, the violation of which, or default under which, by the other party(ies) to such contract, agreement or instrument could reasonably be expected to result in a Material Adverse Effect, (iii) has any financing statements securing obligations in any amounts filed in connection with the Company or any of its Subsidiaries; (iv) is in violation of any term of, or in default under, any contract, agreement or instrument relating to any Indebtedness, except where such violations and defaults would not result, individually or in the aggregate, in a Material Adverse Effect, or (v) is a party to any contract, agreement or instrument relating to any Indebtedness, the performance of which, in the judgment of the Company's officers, has or is expected to have a Material Adverse Effect. Neither the Company nor any of its Subsidiaries have any liabilities or obligations required to be disclosed in the SEC Documents which are not so disclosed in the SEC Documents, other than those incurred in the ordinary course of the Company's or its Subsidiaries' respective businesses and which, individually or in the aggregate, do not or could not have a Material Adverse Effect. For purposes of this Agreement: (x) "**Indebtedness**" of any Person means, without duplication (A) all indebtedness for borrowed money, (B) all obligations issued, undertaken or assumed as the deferred purchase price of property or services (including, without limitation, "capital leases" in accordance with GAAP) (other than trade payables entered into in the ordinary course of business consistent with past practice), (C) all reimbursement or payment obligations with respect to letters of credit, surety bonds and other similar instruments, (D) all obligations evidenced by notes, bonds, debentures or similar instruments, including obligations so evidenced incurred in connection with the acquisition of property, assets or businesses, (E) all indebtedness created or arising under any conditional sale or other title retention agreement, or incurred as financing, in either case with respect to any property or assets acquired with the proceeds of such indebtedness (even though the rights and remedies of the seller or bank under such agreement in the event of default are limited to repossession or sale of such property), (F) all monetary obligations under any leasing or similar arrangement which, in connection with GAAP, consistently applied for the periods covered thereby, is classified as a capital lease, (G) all indebtedness referred to in clauses (A) through (F) above secured by (or for which the holder of such Indebtedness has an existing right, contingent or otherwise, to be secured by) any Lien upon or in any property or assets (including accounts and contract rights) owned by any Person, even though the Person which owns such assets or property has not assumed or become liable for the payment of such indebtedness, and (H) all Contingent Obligations in respect of indebtedness or obligations of others of the kinds referred to in clauses (A) through (G) above; (y) "**Contingent Obligation**" means, as to any Person, any direct or indirect liability, contingent or otherwise, of that Person with respect to any Indebtedness, lease, dividend or other obligation of another Person if the primary purpose or intent of the Person incurring such liability, or the primary effect thereof, is to provide assurance to the obligee of such

liability that such liability will be paid or discharged, or that any agreements relating thereto will be complied with, or that the holders of such liability will be protected (in whole or in part) against loss with respect thereto; and (z) “**Person**” means an individual, a limited liability company, a partnership, a joint venture, a corporation, a trust, an unincorporated organization, any other entity and any Governmental Entity or any department or agency thereof.

(t) Litigation. There is no action, suit, arbitration, proceeding, inquiry or investigation before or by the Principal Market, any court, public board, other Governmental Entity, self-regulatory organization or body pending or, to the knowledge of the Company, threatened against or affecting the Company or any of its Subsidiaries, the Common Stock or any of the Company’s or its Subsidiaries’ officers or directors, whether of a civil or criminal nature or otherwise, in their capacities as such, which is outside of the ordinary course of business or individually or in the aggregate material to the Company or any of its Subsidiaries. To the Company’s knowledge, no director, officer or employee of the Company or any of its Subsidiaries has willfully violated 18 U.S.C. §1519 or engaged in spoliation in reasonable anticipation of litigation. Without limitation of the foregoing, there has not been, and to the knowledge of the Company, there is not pending or contemplated, any investigation by the SEC involving the Company, any of its Subsidiaries or any current or former director or officer of the Company or any of its Subsidiaries. The SEC has not issued any stop order or other order suspending the effectiveness of any registration statement filed by the Company under the 1933 Act or the 1934 Act, including, without limitation, the Registration Statement. After reasonable inquiry of its employees, the Company is not aware of any fact which might result in or form the basis for any such action, suit, arbitration, investigation, inquiry or other proceeding. Neither the Company nor any of its Subsidiaries is subject to any order, writ, judgment, injunction, decree, determination or award of any Governmental Entity.

(u) Insurance. The Company and each of its Subsidiaries are insured by insurers of recognized financial responsibility against such losses and risks and in such amounts as management of the Company believes to be prudent and customary in the businesses in which the Company and its Subsidiaries are engaged. Neither the Company nor any such Subsidiary has been refused any insurance coverage sought or applied for, and neither the Company nor any such Subsidiary has any reason to believe that it will be unable to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business at a cost that would not have a Material Adverse Effect.

(v) Employee Relations. Neither the Company nor any of its Subsidiaries is a party to any collective bargaining agreement or employs any member of a union. The Company and its Subsidiaries believe that their relations with their employees are good. No executive officer (as defined in Rule 501(f) promulgated under the 1933 Act) or other key employee of the Company or any of its Subsidiaries has notified the Company or any such Subsidiary that such officer intends to leave the Company or any such Subsidiary or otherwise terminate such officer’s employment with the Company or any such Subsidiary. No executive officer or other key employee of the Company or any of its Subsidiaries is, or is now expected to be, in violation of any material term of any employment contract, confidentiality, disclosure or proprietary information agreement, non-competition agreement, or any other contract or agreement or any restrictive covenant, and the continued employment of each such executive officer or other key employee (as the case may be) does not subject the Company or any of its Subsidiaries to any liability with respect to any of the foregoing matters. The Company and its Subsidiaries are in compliance with all federal, state,

local and foreign laws and regulations respecting labor, employment and employment practices and benefits, terms and conditions of employment and wages and hours, except where failure to be in compliance would not, either individually or in the aggregate, reasonably be expected to result in a Material Adverse Effect.

(w) Title.

(i) Real Property. Each of the Company and its Subsidiaries holds good title to all real property, leases in real property, facilities or other interests in real property owned or held by the Company or any of its Subsidiaries (the “**Real Property**”) owned by the Company or any of its Subsidiaries (as applicable). The Real Property is free and clear of all Liens and is not subject to any rights of way, building use restrictions, exceptions, variances, reservations, or limitations of any nature except for (a) Liens for current taxes not yet due and (b) zoning laws and other land use restrictions that do not impair the present or anticipated use of the property subject thereto. Any Real Property held under lease by the Company or any of its Subsidiaries are held by them under valid, subsisting and enforceable leases with such exceptions as are not material and do not interfere with the use made and proposed to be made of such property and buildings by the Company or any of its Subsidiaries.

(ii) Fixtures and Equipment. Each of the Company and its Subsidiaries (as applicable) has good title to, or a valid leasehold interest in, the tangible personal property, equipment, improvements, fixtures, and other personal property and appurtenances that are used by the Company or its Subsidiary in connection with the conduct of its business (the “**Fixtures and Equipment**”). The Fixtures and Equipment are structurally sound, are in good operating condition and repair, are adequate for the uses to which they are being put, are not in need of maintenance or repairs except for ordinary, routine maintenance and repairs and are sufficient for the conduct of the Company’s and/or its Subsidiaries’ businesses (as applicable) in the manner as conducted prior to the Closing. Each of the Company and its Subsidiaries owns all of its Fixtures and Equipment free and clear of all Liens except for (a) Liens for current taxes not yet due and (b) zoning laws and other land use restrictions that do not impair the present or anticipated use of the property subject thereto.

(x) FDA. As to each product subject to the jurisdiction of the U.S. Food and Drug Administration (“**FDA**”) under the Federal Food, Drug and Cosmetic Act, as amended, and the regulations thereunder (“**FDCA**”) that is manufactured, packaged, labeled, tested, distributed, sold, and/or marketed by the Company or any of its Subsidiaries (each such product, a “**Pharmaceutical Product**”), such Pharmaceutical Product is being manufactured, packaged, labeled, tested, distributed, sold and/or marketed by the Company in compliance with all applicable requirements under FDCA and similar laws, rules and regulations relating to registration, investigational use, premarket clearance, licensure, or application approval, good manufacturing practices, good laboratory practices, good clinical practices, product listing, quotas, labeling, advertising, record keeping and filing of reports, except where the failure to be in compliance would not have a Material Adverse Effect. There is no pending, completed or, to the Company’s knowledge, threatened, action (including any lawsuit, arbitration, or legal or administrative or regulatory proceeding, charge, complaint, or investigation) against the Company or any of its Subsidiaries, and none of the Company or any of its Subsidiaries has received any notice, warning letter or other communication from the FDA or any other governmental entity,

which (i) contests the premarket clearance, licensure, registration, or approval of, the uses of, the distribution of, the manufacturing or packaging of, the testing of, the sale of, or the labeling and promotion of any Pharmaceutical Product, (ii) withdraws its approval of, requests the recall, suspension, or seizure of, or withdraws or orders the withdrawal of advertising or sales promotional materials relating to, any Pharmaceutical Product, (iii) imposes a clinical hold on any clinical investigation by the Company or any of its Subsidiaries, (iv) enjoins production at any facility of the Company or any of its Subsidiaries, (v) enters or proposes to enter into a consent decree of permanent injunction with the Company or any of its Subsidiaries, or (vi) otherwise alleges any violation of any laws, rules or regulations by the Company or any of its Subsidiaries, and which, either individually or in the aggregate, would have a Material Adverse Effect. The properties, business and operations of the Company have been and are being conducted in all material respects in accordance with all applicable laws, rules and regulations of the FDA. The Company has not been informed by the FDA that the FDA will prohibit the marketing, sale, license or use in the United States of any product proposed to be developed, produced or marketed by the Company nor has the FDA expressed any concern as to approving or clearing for marketing any product being developed or proposed to be developed by the Company.

(y) Intellectual Property Rights. The Company and its Subsidiaries own or possess adequate rights or licenses to use all trademarks, trade names, service marks, service mark registrations, service names, original works of authorship, patents, patent rights, copyrights, inventions, licenses, approvals, governmental authorizations, trade secrets and other intellectual property rights and all applications and registrations therefor (“**Intellectual Property Rights**”) necessary to conduct their respective businesses as now conducted. None of the Company’s Intellectual Property Rights have expired or terminated or have been abandoned or are expected to expire or terminate or are expected to be abandoned, within three years from the date of this Agreement. The Company does not have any knowledge of any infringement by the Company or its Subsidiaries of Intellectual Property Rights of others. There is no claim, action or proceeding being made or brought, or to the knowledge of the Company or any of its Subsidiaries, being threatened, against the Company or any of its Subsidiaries regarding its Intellectual Property Rights. Neither the Company nor any of its Subsidiaries is aware of any facts or circumstances which might give rise to any of the foregoing infringements or claims, actions or proceedings. The Company and its Subsidiaries have taken reasonable security measures to protect the secrecy, confidentiality and value of all of their Intellectual Property Rights.

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

license or approval where in each clause (i), (ii) and (iii), the failure to so comply could be reasonably expected to have, individually or in the aggregate, a Material Adverse Effect.

(aa) [Intentionally Omitted.]

(bb) Tax Status. The Company and each of its Subsidiaries (i) has timely made or filed all foreign, federal and state income and all other tax returns, reports and declarations required by any jurisdiction to which it is subject, (ii) has timely paid all taxes and other governmental assessments and charges that are material in amount, shown or determined to be due on such returns, reports and declarations, except those being contested in good faith and (iii) has set aside on its books provision reasonably adequate for the payment of all taxes for periods subsequent to the periods to which such returns, reports or declarations apply. There are no unpaid taxes in any material amount claimed to be due by the taxing authority of any jurisdiction, and the officers of the Company and its Subsidiaries know of no basis for any such claim. The Company is not operated in such a manner as to qualify as a passive foreign investment company, as defined in Section 1297 of the U.S. Internal Revenue Code of 1986, as amended (the “Code”).

(cc) Internal Accounting and Disclosure Controls. The Company and each of its Subsidiaries maintains internal control over financial reporting (as such term is defined in Rule 13a-15(f) under the 1934 Act) that is effective to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles, including that (i) transactions are executed in accordance with management’s general or specific authorizations, (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP and to maintain asset and liability accountability, (iii) access to assets or incurrence of liabilities is permitted only in accordance with management’s general or specific authorization, (iv) the recorded accountability for assets and liabilities is compared with the existing assets and liabilities at reasonable intervals and appropriate action is taken with respect to any difference and (v) the interactive data in XBRL included or incorporated by references in the Registration Statement, the Prospectus and the Prospectus Supplement fairly present the information called for in all material respects and are prepared in accordance with the SEC’s rules and guidelines applicable thereto. The Company maintains disclosure controls and procedures (as such term is defined in Rule 13a- 15(e) under the 1934 Act) that are effective in ensuring that information required to be disclosed by the Company in the reports that it files or submits under the 1934 Act is recorded, processed, summarized and reported, within the time periods specified in the rules and forms of the SEC, including, without limitation, controls and procedures designed to ensure that information required to be disclosed by the Company in the reports that it files or submits under the 1934 Act is accumulated and communicated to the Company’s management, including its principal executive officer or officers and its principal financial officer or officers, as appropriate, to allow timely decisions regarding required disclosure. Neither the Company nor any of its Subsidiaries has received any notice or correspondence from any accountant, Governmental Entity or other Person relating to any potential material weakness or significant deficiency in any part of the internal controls over financial reporting of the Company or any of its Subsidiaries.

(dd) Off Balance Sheet Arrangements. There is no transaction, arrangement, or other relationship between the Company or any of its Subsidiaries and an unconsolidated or other off

balance sheet entity that is required to be disclosed by the Company in its 1934 Act filings and is not so disclosed or that otherwise could be reasonably likely to have a Material Adverse Effect.

(ee) Investment Company Status. The Company is not, and upon consummation of the sale of the Securities will not be, an “investment company,” an affiliate of an “investment company,” a company controlled by an “investment company” or an “affiliated person” of, or “promoter” or “principal underwriter” for, an “investment company” as such terms are defined in the Investment Company Act of 1940, as amended.

(ff) Manipulation of Price. Neither the Company nor any of its Subsidiaries has, and, to the knowledge of the Company, no Person acting on their behalf has, directly or indirectly, (i) taken any action designed to cause or to result in the stabilization or manipulation of the price of any security of the Company or any of its Subsidiaries to facilitate the sale or resale of any of the Securities, (ii) sold, bid for, purchased, or paid any compensation for soliciting purchases of, any of the Securities, (iii) paid or agreed to pay to any Person any compensation for soliciting another to purchase any other securities of the Company or any of its Subsidiaries or (iv) paid or agreed to pay any Person for research services with respect to any securities of the Company or any of its Subsidiaries.

(gg) U.S. Real Property Holding Corporation. Neither the Company nor any of its Subsidiaries is, or has ever been, and so long as any of the Securities are held by the Buyer, shall become, a U.S. real property holding corporation within the meaning of Section 897 of the Code, and the Company and each Subsidiary shall so certify upon the Buyer’s request.

(hh) Transfer Taxes. On the Closing Date, all stock transfer or other taxes (other than income or similar taxes) which are required to be paid in connection with the issuance, sale and transfer of the Securities to be sold to the Buyer hereunder will be, or will have been, fully paid or provided for by the Company, and all laws imposing such taxes will be or will have been complied with.

(ii) Bank Holding Company Act. Neither the Company nor any of its Subsidiaries is subject to the Bank Holding Company Act of 1956, as amended (the “**BHCA**”) and to regulation by the Board of Governors of the Federal Reserve System (the “**Federal Reserve**”). Neither the Company nor any of its Subsidiaries or affiliates owns or controls, directly or indirectly, five percent (5%) or more of the outstanding shares of any class of voting securities or twenty-five percent (25%) or more of the total equity of a bank or any entity that is subject to the BHCA and to regulation by the Federal Reserve. Neither the Company nor any of its Subsidiaries or affiliates exercises a controlling influence over the management or policies of a bank or any entity that is subject to the BHCA and to regulation by the Federal Reserve.

(jj) Shell Company Status. The Company is not, and has never been, an issuer identified in, or subject to, Rule 144(i).

(kk) Illegal or Unauthorized Payments; Political Contributions. Neither the Company nor any of its Subsidiaries nor, to the Company’s knowledge, any of the officers, directors, employees, agents or other representatives of the Company or any of its Subsidiaries or any other business entity or enterprise with which the Company or any Subsidiary is or has been affiliated

or associated, has, directly or indirectly, made or authorized any payment, contribution or gift of money, property, or services, whether or not in contravention of applicable law, (i) as a kickback or bribe to any Person or (ii) to any political organization, or the holder of or any aspirant to any elective or appointive public office except for personal political contributions not involving the direct or indirect use of funds of the Company or any of its Subsidiaries.

(ll) Money Laundering. The Company and its Subsidiaries are in compliance with, and have not previously violated, the USA Patriot Act of 2001 and all other applicable U.S. and non-U.S. anti-money laundering laws and regulations, including, but not limited to, the laws, regulations and Executive Orders and sanctions programs administered by the U.S. Office of Foreign Assets Control, including, without limitation, (i) Executive Order 13224 of September 23, 2001 entitled, "Blocking Property and Prohibiting Transactions With Persons Who Commit, Threaten to Commit, or Support Terrorism" (66 Fed. Reg. 49079 (2001)); and (ii) any regulations contained in 31 CFR, Subtitle B, Chapter V.

(mm) Management. Except as set forth in Schedule 3(mm) hereto, during the past five year period, no current or former officer or director or, to the knowledge of the Company, no current ten percent (10%) or greater stockholder of the Company or any of its Subsidiaries has been the subject of:

(i) a petition under bankruptcy laws or any other insolvency or moratorium law or the appointment by a court of a receiver, fiscal agent or similar officer for such Person, or any partnership in which such person was a general partner at or within two years before the filing of such petition or such appointment, or any corporation or business association of which such person was an executive officer at or within two years before the time of the filing of such petition or such appointment;

(ii) a conviction in a criminal proceeding or a named subject of a pending criminal proceeding (excluding traffic violations that do not relate to driving while intoxicated or driving under the influence);

(iii) any order, judgment or decree, not subsequently reversed, suspended or vacated, of any court of competent jurisdiction, permanently or temporarily enjoining any such person from, or otherwise limiting, the following activities:

(1) Acting as a futures commission merchant, introducing broker, commodity trading advisor, commodity pool operator, floor broker, leverage transaction merchant, any other person regulated by the United States Commodity Futures Trading Commission or an associated person of any of the foregoing, or as an investment adviser, underwriter, broker or dealer in securities, or as an affiliated person, director or employee of any investment company, bank, savings and loan association or insurance company, or engaging in or continuing any conduct or practice in connection with such activity;

(2) Engaging in any particular type of business practice; or

(3) Engaging in any activity in connection with the purchase or sale of any security or commodity or in connection with any violation of securities laws or commodities laws;

(iv) any order, judgment or decree, not subsequently reversed, suspended or vacated, of any authority barring, suspending or otherwise limiting for more than sixty (60) days the right of any such person to engage in any activity described in the preceding sub paragraph, or to be associated with persons engaged in any such activity;

(v) a finding by a court of competent jurisdiction in a civil action or by the SEC or other authority to have violated any securities law, regulation or decree and the judgment in such civil action or finding by the SEC or any other authority has not been subsequently reversed, suspended or vacated; or

(vi) a finding by a court of competent jurisdiction in a civil action or by the Commodity Futures Trading Commission to have violated any federal commodities law, and the judgment in such civil action or finding has not been subsequently reversed, suspended or vacated.

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

(oo) No Disagreements with Accountants and Lawyers. There are no material disagreements of any kind presently existing, or reasonably anticipated by the Company to arise, between the Company and the accountants and lawyers formerly or presently employed by the Company and the Company is current with respect to any fees owed to its accountants and lawyers which could affect the Company's ability to perform any of its obligations under any of the Transaction Documents. In addition, on or prior to the date hereof, the Company had discussions with its accountants about its financial statements previously filed with the SEC. Based on those discussions, the Company has no reason to believe that it will need to restate any such financial statements or any part thereof.

(pp) No Additional Agreements. The Company does not have any agreement or understanding with the Buyer with respect to the transactions contemplated by the Transaction Documents other than as specified in the Transaction Documents.

(qq) Registration Rights. No Person has any right to cause the Company or any Subsidiary to effect the registration under the 1933 Act of any securities of the Company or any Subsidiary.

(rr) XBRL. The interactive data in eXtensible Business Reporting Language ("XBRL")

included or incorporated by reference in the Registration Statement fairly presents the information called for in all material respects and has been prepared in accordance with the SEC's rules and guidelines applicable thereto.

(ss) Disclosure. The Company confirms that neither it nor any other Person acting on its behalf has provided the Buyer or its agents or counsel with any information that constitutes or could reasonably be expected to constitute material, non-public information concerning the Company or any of its Subsidiaries, other than the existence of the transactions contemplated by this Agreement and the other Transaction Documents. The Company understands and confirms that the Buyer will rely on the foregoing representations in effecting transactions in securities of the Company. All disclosure provided to the Buyer regarding the Company and its Subsidiaries, their businesses and the transactions contemplated hereby, including the schedules to this Agreement, furnished by or on behalf of the Company or any of its Subsidiaries is true and correct and does not contain any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements made therein, in the light of the circumstances under which they were made, not misleading. All of the written information furnished after the date hereof by or on behalf of the Company or any of its Subsidiaries to the Buyer pursuant to or in connection with this Agreement and the other Transaction Documents, taken as a whole, will be true and correct in all material respects as of the date on which such information is so provided and will not contain any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements made therein, in the light of the circumstances under which they were made, not misleading. The press releases disseminated by the Company during the twelve (12) months preceding the date of this Agreement, taken as a whole, are true and correct in all material respects. No event or circumstance has occurred or information exists with respect to the Company or any of its Subsidiaries or its or their business, properties, liabilities, prospects, operations (including results thereof) or conditions (financial or otherwise), which, under applicable law, rule or regulation, requires public disclosure at or before the date hereof or announcement by the Company but which has not been so publicly disclosed. All financial projections and forecasts that have been prepared by or on behalf of the Company or any of its Subsidiaries and made available to the Buyer have been prepared in good faith based upon reasonable assumptions and represented, at the time each such financial projection or forecast was delivered to the Buyer, the Company's best estimate of future financial performance (it being recognized that such financial projections or forecasts are not to be viewed as facts and that the actual results during the period or periods covered by any such financial projections or forecasts may differ from the projected or forecasted results). The Company acknowledges and agrees that the Buyer has not made any representations or warranties with respect to the transactions contemplated hereby other than those specifically set forth in Section 2.

(tt) Accountants. BDO USA, LLP ("**BDO**"), whose report dated March 6, 2019 relating to the financial statements of the Company is filed with the SEC as part of the Company's Annual Report on Form 10-K for the year ended December 31, 2018 filed with the Commission and incorporated by reference into the Registration Statement and the Prospectus, are and, during the periods covered by their report, were an independent registered public accounting firm within the meaning of the 1933 Act and the Public Company Accounting Oversight Board (United States).

(uu) Listing and Maintenance Requirements. The Common Stock is registered pursuant to Section 12(b) of the 1934 Act, and the Company has taken no action designed to, or which to

its knowledge is likely to have the effect of, terminating the registration of the Common Stock under the 1934 Act nor has the Company received any notification that the SEC is contemplating terminating such registration. The Company is not in violation of any of the rules, regulations or requirements of the Principal Market and has no knowledge of any facts or circumstances that could reasonably lead to delisting or suspension of the Common Stock by the Principal Market in the foreseeable future. Except as disclosed in the SEC Documents, during the two years prior to the date hereof, (i) the Common Stock has been listed or designated for quotation on the Principal Market, (ii) trading in the Common Stock has not been suspended by the SEC or the Principal Market and (iii) the Company has received no communication, written or oral, from the SEC or the Principal Market regarding the suspension or delisting of the Common Stock from the Principal Market. The Common Stock is currently eligible for electronic transfer through the Depository Trust Company or another established clearing corporation and the Company is current in payment of the fees to the Depository Trust Company (or such other established clearing corporation) in connection with such electronic transfer.

(vv) Public Float Calculation. As of the close of trading on the Principal Market on August 19, 2019, the aggregate market value of the outstanding voting and non-voting common equity (as defined in Rule 405) of the Company held by persons other than affiliates of the Company (pursuant to Rule 144, those that directly, or indirectly through one or more intermediaries, control, or are controlled by, or are under common control with, the Company) (the “Non-Affiliate Shares”), was approximately \$17,059,560 (calculated by multiplying (x) the price at which the common equity of the Company was last sold on the Principal Market on August 19, 2019 by (y) the number of Non-Affiliate Shares outstanding on August 19, 2019).

(ww) No Disqualification Events. With respect to the Series F Securities to be offered, issued and sold hereunder and under the Series F Warrant, as applicable, in reliance on Rule 506(b) of Regulation D, none of the Company, any of its predecessors, any affiliated issuer, any director, executive officer, other officer of the Company participating in the offering hereunder, any beneficial owner of 20% or more of the Company’s outstanding voting equity securities, calculated on the basis of voting power, nor any promoter (as that term is defined in Rule 405 under the 1933 Act) connected with the Company in any capacity at the time of sale (each, an “**Issuer Covered Person**”) is subject to any of the “Bad Actor” disqualifications described in Rule 506(d)(1)(i) to (viii) of Regulation D (a “**Disqualification Event**”), except for a Disqualification Event covered by Rule 506(d)(2) or (d)(3) of Regulation D. The Company has exercised reasonable care to determine whether any Issuer Covered Person is subject to a Disqualification Event. The Company has complied, to the extent applicable, with its disclosure obligations under Rule 506(e) of Regulation D, and has furnished to the Buyer a copy of any disclosures provided thereunder.

4. COVENANTS.

(a) Reasonable Best Efforts. The Buyer shall use its reasonable best efforts to timely satisfy each of the covenants hereunder and conditions to be satisfied by it as provided in Section 6 of this Agreement. The Company shall use its reasonable best efforts to timely satisfy each of the covenants hereunder and conditions to be satisfied by it as provided in Section 7 of this Agreement.

(b) Form D and Blue Sky.

(c) The Company agrees to file with the SEC a Form D with respect to the Series F Securities as required under Regulation D and to provide a copy thereof to the Buyer promptly after such filing. The Company shall, on or before the Closing Date, take such action as the Company shall reasonably determine is necessary in order to obtain an exemption for, or to, qualify the Securities for sale to the Buyer at the Closing pursuant to this Agreement under applicable securities or “Blue Sky” laws of the states of the United States (or to obtain an exemption from such qualification), and shall provide evidence of any such action so taken to the Buyer on or prior to the Closing Date. The Company shall make any filings and reports relating to the offer and sale of the Securities required under applicable securities or “Blue Sky” laws of the states of the United States following the Closing Date.

(c) Reporting Status. Until the earlier of (i) the date on which the Buyer shall have sold all of the Securities and (ii) none of the Warrants remain outstanding (the “**Reporting Period**”), the Company shall timely file all reports required to be filed with the SEC pursuant to the 1934 Act, and the Company shall not terminate its status as an issuer required to file reports under the 1934 Act even if the 1934 Act or the rules and regulations thereunder would no longer require or otherwise permit such termination. At any time during the Reporting Period, if the Company (i) shall fail for any reason to satisfy the current public information requirement under Rule 144(c) or (ii) has ever been an issuer described in Rule 144(i)(1)(i) or becomes an issuer in the future, and the Company shall fail to satisfy any condition set forth in Rule 144(i)(2) (a “**Public Information Failure**”) then, in addition to the Buyer’s other available remedies, the Company shall pay to the Buyer, in cash, as partial liquidated damages and not as a penalty, by reason of any such delay in or reduction of its ability to sell the Warrant Shares, an amount in cash equal to two percent (2.0%) of the aggregate Exercise Price of the Buyer’s Warrants on the day of a Public Information Failure and on every thirtieth (30th) day (prorated for periods totaling less than thirty days) thereafter until the earlier of (a) the date such Public Information Failure is cured and (b) such time that such public information is no longer required for the Buyer to transfer the Warrant Shares pursuant to Rule 144. The payments to which the Buyer shall be entitled pursuant to this Section 4(c) are referred to herein as “**Public Information Failure Payments**.” Public Information Failure Payments shall be paid on the earlier of (i) the last day of the calendar month during which such Public Information Failure Payments are incurred and (ii) the third (3rd) Business Day after the event or failure giving rise to the Public Information Failure Payments is cured. In the event the Company fails to make Public Information Failure Payments in a timely manner, such Public Information Failure Payments shall bear interest at the rate of 1.5% per month (prorated for partial months) until paid in full. Nothing herein shall limit the Buyer’s right to pursue actual damages for the Public Information Failure, and the Buyer shall have the right to pursue all remedies available to it at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief.

(d) Use of Proceeds. The Company will use the proceeds from the sale of the Securities as described in the Prospectus Supplement, but not, directly or indirectly, for (i) except as set forth on Schedule 4(d), the satisfaction of any indebtedness of the Company or any of its Subsidiaries, (ii) the redemption or repurchase of any securities of the Company or any of its Subsidiaries, or (iii) the settlement of any outstanding litigation.

(e) Financial Information. The Company agrees to send the following to the Buyer during the Reporting Period (i) unless the following are filed with the SEC through EDGAR and

are available to the public through the EDGAR system, within one (1) Business Day after the filing thereof with the SEC, a copy of its Annual Reports on Form 10-K and Quarterly Reports on Form 10-Q, any interim reports or any consolidated balance sheets, income statements, stockholders' equity statements and/or cash flow statements for any period other than annual, any Current Reports on Form 8-K and any registration statements (other than on Form S-8) or amendments filed pursuant to the 1933 Act, (ii) unless the following are either filed with the SEC through EDGAR or are otherwise widely disseminated via a recognized news release service (such as PR Newswire), on the same day as the release thereof, facsimile copies of all press releases issued by the Company or any of its Subsidiaries and (iii) unless the following are filed with the SEC through EDGAR, copies of any notices and other information made available or given to the stockholders of the Company generally, contemporaneously with the making available or giving thereof to the stockholders.

(f) **Listing.** The Company shall promptly secure the listing or designation for quotation (as the case may be) of all of the Underlying Securities (as defined below) upon each national securities exchange and automated quotation system, if any, upon which the Common Stock is then listed or designated for quotation (as the case may be) (subject to official notice of issuance) and shall maintain such listing or designation for quotation (as the case may be) of all Underlying Securities on such national securities exchange or automated quotation system. The Company shall maintain the Common Stock's listing or authorization for quotation (as the case may be) on the Principal Market, The New York Stock Exchange, the NYSE American, The Nasdaq Global Market or The Nasdaq Global Select Market (each, an "**Eligible Market**"). Neither the Company nor any of its Subsidiaries shall take any action which could be reasonably expected to result in the delisting or suspension of the Common Stock (including, without limitation, the Underlying Securities) on an Eligible Market. The Company shall pay all fees and expenses in connection with satisfying its obligations under this Section 4(f). "**Underlying Securities**" means the (i) the Common Shares, (ii) the Series E Warrant Shares issuable upon exercise of the Series E Warrant, (iii) the Series F Warrant Shares issuable upon exercise of the Series F Warrant and (iv) any capital stock of the Company issued or issuable with respect to the Common Shares, the Series E Warrant, the Series F Warrant, the Series E Warrant Shares or the Series F Warrant Shares, including, without limitation, (1) as a result of any stock split, stock dividend, recapitalization, exchange or similar event or otherwise and (2) shares of capital stock of the Company into which the shares of Common Stock are converted or exchanged and shares of capital stock of a Successor Entity (as defined in the Warrants) into which the shares of Common Stock are converted or exchanged, in each case, without regard to any limitations on exercise of the Warrants.

(g) **Fees.** The Company shall reimburse the Buyer for all reasonable costs and expenses incurred by it or its affiliates in connection with the transactions contemplated by the Transaction Documents (including, without limitation, as applicable, all reasonable legal fees and disbursements of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., counsel to the Buyer, any other reasonable fees and expenses in connection with the structuring, documentation, negotiation and closing of the transactions contemplated by the Transaction Documents and due diligence and regulatory filings in connection therewith), in an aggregate amount set forth in a provision that is expressly binding on the Company and the Buyer in that certain term sheet, dated as of March 22, 2019, executed by the Company and the Buyer (the "**Term Sheet**"), which aggregate amount, less any portion thereof previously paid by the Company to the Buyer, shall be withheld by the Buyer from the Purchase Price at the Closing or paid by the Company on demand by the Buyer if the

Buyer terminates its obligations under this Agreement in accordance with Section 8 (as the case may be). The Company shall be responsible for the payment of any placement agent's fees, financial advisory fees, transfer agent fees, DTC fees or broker's commissions (other than for Persons engaged by the Investor) relating to or arising out of the transactions contemplated by the Transaction Documents. The Company shall pay, and hold the Buyer harmless against, any liability, loss or expense (including, without limitation, reasonable attorneys' fees and out-of-pocket expenses) arising in connection with any claim relating to any such payment. Except as otherwise set forth in the Transaction Documents, each party to this Agreement shall bear its own expenses in connection with the sale of the Securities to the Buyer.

(h) Pledge of Securities. Notwithstanding anything to the contrary contained in this Agreement, the Company acknowledges and agrees that the Securities may be pledged by an Investor in connection with a bona fide margin agreement or other loan or financing arrangement that is secured by the Securities. The pledge of Securities shall not be deemed to be a transfer, sale or assignment of the Securities hereunder, and no Investor effecting a pledge of Securities shall be required to provide the Company with any notice thereof or otherwise make any delivery to the Company pursuant to this Agreement or any other Transaction Document. The Company hereby agrees to execute and deliver such documentation as a pledgee of the Securities may reasonably request in connection with a pledge of the Securities to such pledgee by the Buyer.

(i) Prohibition of Short Sales and Hedging Transactions. During the term of this Agreement, the Buyer and its agents, representatives and affiliates shall not in any manner whatsoever enter into or effect, directly or indirectly, any (i) "short sale" (as such term is defined in Rule 200 of Regulation SHO of the 1934 Act) of the Common Stock or (ii) hedging transaction, which establishes a net short position with respect to the Common Stock.

(j) Disclosure of Transactions and Other Material Information.

(i) Disclosure of Transaction. The Company shall, on or before 9:00 a.m., New York time, on the first (1st) Business Day after the date of this Agreement, (i) issue a press release (the "**Press Release**") reasonably acceptable to the Buyer disclosing all the material terms of the transactions contemplated by the Transaction Documents, (ii) file with the SEC a Current Report on Form 8-K reasonably acceptable to the Buyer describing all the material terms of the transactions contemplated by the Transaction Documents in the form required by the 1934 Act and attaching all the material Transaction Documents (including, without limitation, this Agreement (and all schedules to this Agreement), the form of the Series E Warrant and the form of the Series F Warrant) (including all attachments, the "**8-K Filing**"), and (iii) file with the SEC the Prospectus Supplement pursuant to Rule 424(b) under the 1933 Act specifically relating to the transactions contemplated by, and describing the material terms and conditions of, the Transaction Documents, containing information previously omitted at the time of effectiveness of the Registration Statement in reliance on Rule 430B under the Securities Act, and disclosing all information relating to the transactions contemplated hereby required to be disclosed in the Registration Statement and the Prospectus as of the date of the Prospectus Supplement, including, without limitation, information required to be disclosed in the section captioned "Plan of Distribution" in the Prospectus. The Company shall permit the Buyer to review and comment upon the Press Release, the Current Report and the Prospectus Supplement within

a reasonable time prior to their filing with the SEC, the Company shall give reasonable consideration to all such comments, and the Company shall not issue the Press Release or file the Current Report or the Prospectus Supplement with the SEC in a form to which the Buyer reasonably objects. The Buyer shall furnish to the Company such information regarding itself, the Securities beneficially owned by it and the intended method of distribution thereof, including any arrangement between the Buyer and any other Person relating to the sale or distribution of the Securities, as shall be reasonably requested by the Company in connection with the preparation and issuance of the Press Release and the preparation and filing of the Current Report and the Prospectus Supplement, and shall otherwise cooperate with the Company as reasonably requested by the Company in connection with the preparation and issuance of the Press Release and the preparation and filing of the Current Report and the Prospectus Supplement with the SEC. From and after the issuance of the Press Release, the Company shall have disclosed all material, non-public information (if any) provided to any of the Buyer by the Company or any of its Subsidiaries or any of their respective officers, directors, employees or agents in connection with the transactions contemplated by the Transaction Documents. In addition, effective upon the issuance of the Press Release, the Company acknowledges and agrees that any and all confidentiality or similar obligations under any agreement, whether written or oral, between the Company, any of its Subsidiaries or any of their respective officers, directors, affiliates, employees or agents, on the one hand, and any of the Buyer or any of their affiliates, on the other hand, shall terminate.

(ii) Limitations on Disclosure. The Company shall not, and the Company shall cause each of its Subsidiaries and each of its and their respective officers, directors, employees and agents not to, provide the Buyer with any material, non-public information regarding the Company or any of its Subsidiaries from and after the issuance of the Press Release without the express prior written consent of the Buyer (which may be granted or withheld in the Buyer's sole discretion). To the extent that the Company delivers any material, non-public information to the Buyer without the Buyer's consent, the Company hereby covenants and agrees that the Buyer shall not have any duty of confidentiality with respect to, or a duty not to trade on the basis of, such material, non-public information. Subject to the foregoing, neither the Company nor any of its Subsidiaries shall issue any press releases or any other public statements with respect to the transactions contemplated hereby; provided, however, the Company shall be entitled, without the prior approval of the Buyer, to issue any press release or other public disclosure with respect to such transactions (i) in substantial conformity with the 8-K Filing and contemporaneously therewith and (ii) as is required by applicable law and regulations (provided that in the case of clause (i) the Buyer shall be consulted by the Company in connection with any such press release or other public disclosure prior to its release). Without the prior written consent of the Buyer (which may be granted or withheld in the Buyer's sole discretion), the Company shall not (and shall cause each of its Subsidiaries and affiliates to not) disclose the name of the Buyer in any filing, announcement, release or otherwise. Notwithstanding anything contained in this Agreement to the contrary and without implication that the contrary would otherwise be true, the Company expressly acknowledges and agrees that the Buyer shall not have (unless expressly agreed to by the Buyer after the date hereof in a written definitive and binding agreement executed by the Company and the Buyer) any duty of confidentiality with respect to, or a duty not to trade

on the basis of, any material, non-public information regarding the Company or any of its Subsidiaries.

(iii) Other Confidential Information, Disclosure Failures; Disclosure Delay Payments. In addition to other remedies set forth in this Section 4(j), and without limiting anything set forth in any other Transaction Document, at any time after the Closing Date if the Company, any of its Subsidiaries, or any of their respective officers, directors, employees or agents, provides the Buyer with material non-public information relating to the Company or any of its Subsidiaries (each, the “**Confidential Information**”), the Company shall, on or prior to the applicable Required Disclosure Date (as defined below), publicly disclose such Confidential Information on a Current Report on Form 8-K or otherwise (each, a “**Disclosure**”). From and after such Disclosure, the Company shall have disclosed all Confidential Information provided to the Buyer by the Company or any of its Subsidiaries or any of their respective officers, directors, employees or agents in connection with the transactions contemplated by the Transaction Documents. In addition, effective upon such Disclosure, the Company acknowledges and agrees that any and all confidentiality or similar obligations under any agreement, whether written or oral, between the Company, any of its Subsidiaries or any of their respective officers, directors, affiliates, employees or agents, on the one hand, and any of the Buyer or any of its affiliates, on the other hand, shall terminate. In the event that the Company fails to effect such Disclosure on or prior to the Required Disclosure Date and the Buyer shall have possessed Confidential Information for at least ten (10) consecutive Trading Days (as defined in the Warrants) (each, a “**Disclosure Failure**”), then, as partial relief for the damages to the Buyer by reason of any such delay in, or reduction of, its ability to buy or sell shares of Common Stock after such Required Disclosure Date (which remedy shall not be exclusive of any other remedies available at law or in equity), the Company shall pay to the Buyer an amount in cash equal to the greater of (I) two percent (2%) of the Purchase Price and (II) the applicable Disclosure Restitution Amount, on each of the following dates (each, a “**Disclosure Delay Payment Date**”): (i) on the date of such Disclosure Failure and (ii) on every thirty (30) day anniversary such Disclosure Failure until the earlier of (x) the date such Disclosure Failure is cured and (y) such time as all such non-public information provided to the Buyer shall cease to be Confidential Information (as evidenced by a certificate, duly executed by an authorized officer of the Company to the foregoing effect) (such earlier date, as applicable, a “**Disclosure Cure Date**”). Following the initial Disclosure Delay Payment for any particular Disclosure Failure, without limiting the foregoing, if a Disclosure Cure Date occurs prior to any thirty (30) day anniversary of such Disclosure Failure, then such Disclosure Delay Payment (prorated for such partial month) shall be made on the third (3rd) Business Day after such Disclosure Cure Date. The payments to which an Investor shall be entitled pursuant to this Section 4(j)(iii) are referred to herein as “**Disclosure Delay Payments.**” In the event the Company fails to make Disclosure Delay Payments in a timely manner in accordance with the foregoing, such Disclosure Delay Payments shall bear interest at the rate of two percent (2%) per month (prorated for partial months) until paid in full.

(iv) For the purpose of this Agreement the following definitions shall apply:

(1) “**Disclosure Failure Market Price**” means, as of any Disclosure Delay Payment Date, the price computed as the quotient of (I) the sum of the five (5) highest VWAPs (as defined in the Warrants) of the Common Stock during the applicable Disclosure Restitution Period (as defined below), divided by (II) five (5) (such period, the “**Disclosure Failure Measuring Period**”). All such determinations to be appropriately adjusted for any share dividend, share split, share combination, reclassification or similar transaction that proportionately decreases or increases the Common Stock during such Disclosure Failure Measuring Period.

(2) “**Disclosure Restitution Amount**” means, as of any Disclosure Delay Payment Date, the product of (x) difference of (I) the Disclosure Failure Market Price less (II) the lowest purchase price, per share of Common Stock, of any Common Stock issued or issuable to the Buyer pursuant to this Agreement or either of the Warrants, multiplied by (y) 10% of the aggregate daily dollar trading volume (as reported on Bloomberg (as defined in the Warrants)) of the Common Stock on the Principal Market for each Trading Day either (1) with respect to the initial Disclosure Delay Payment Date, during the period commencing on the applicable Required Disclosure Date through and including the Trading Day immediately prior to the initial Disclosure Delay Payment Date or (2) with respect to each other Disclosure Delay Payment Date, during the period commencing the immediately preceding Disclosure Delay Payment Date through and including the Trading Day immediately prior to such applicable Disclosure Delay Payment Date (such applicable period, the “**Disclosure Restitution Period**”).

(3) “**Required Disclosure Date**” means (x) if the Buyer authorized the delivery of such Confidential Information, either (I) if the Company and the Buyer have mutually agreed upon a date (as evidenced by an e-mail or other writing) of Disclosure of such Confidential Information, such agreed upon date or (II) otherwise, the seventh (7th) calendar day after the date the Buyer first received any Confidential Information or (y) if the Buyer did not authorize the delivery of such Confidential Information, the first (1st) Business Day after the Buyer’s receipt of such Confidential Information.

(k) Additional Issuance of Securities. So long as the Buyer beneficially owns any Securities, the Company will not, without the prior written consent of the Buyer (which may be granted or withheld in the Buyer’s sole discretion), issue any other securities that would cause a breach or default under any of the Warrants. The Company agrees that for the period commencing on the date hereof and ending on the date immediately following the 60th calendar day after the Closing Date (the “**Restricted Period**”), neither the Company nor any of its Subsidiaries shall directly or indirectly:

(i) file a registration statement under the 1933 Act relating to securities that are not the Underlying Securities (other than (A) a registration statement on Form S-8, (B) a new shelf registration statement on Form S-3 filed with the SEC prior to the third anniversary of the effective date of the Registration Statement as the successor registration statement to the Registration Statement covering Common Stock, including the Series C

Warrant Shares, and certain other securities of the company (but not with respect to any Subsequent Financing during the Restricted Period, other than the issuance of Series E Warrant Shares upon exercise of the Series E Warrants), or (C) such supplements or amendments to registration statements that are outstanding and have been declared effective by the SEC as of the date hereof solely to the extent necessary to keep such registration statements effective and available and not with respect to any Subsequent Financing;

(ii) amend or modify (whether by an amendment, waiver, exchange of securities, or otherwise) any of the Company's warrants to purchase Common Stock that are outstanding as of the date hereof; or

(iii) issue, offer, sell, grant any option or right to purchase, or otherwise dispose of (or announce any issuance, offer, sale, grant of any option or right to purchase or other disposition of) any equity security or any equity-linked or related security (including, without limitation, any "equity security" (as that term is defined under Rule 405 promulgated under the 1933 Act)), any Convertible Securities (as defined below), any debt, any preferred stock or any purchase rights or any combination of units thereof (any such issuance, offer, sale, grant, disposition or announcement (whether occurring during the Restricted Period or at any time thereafter) is referred to as a "**Subsequent Placement**"). Notwithstanding the foregoing, this Section 4(j)(iii) shall not apply in respect of the issuance of (A) shares of Common Stock or standard options to purchase Common Stock to directors, officers or employees of the Company in their capacity as such pursuant to an Approved Stock Plan (as defined below), provided that the exercise price of any such options is not lowered, none of such options are amended to increase the number of shares issuable thereunder and none of the terms or conditions of any such options are otherwise materially changed in any manner that adversely affects any of the Buyer; (B) shares of Common Stock issued upon the conversion or exercise of Convertible Securities (other than standard options to purchase Common Stock issued pursuant to an Approved Stock Plan that are covered by clause (A) above) issued prior to the date hereof, provided that the conversion, exercise or other method of issuance (as the case may be) of any such Convertible Security is made solely pursuant to the conversion, exercise or other method of issuance (as the case may be) provisions of such Convertible Security that were in effect on the date immediately prior to the date of this Agreement, the conversion, exercise or issuance price of any such Convertible Securities (other than standard options to purchase Common Stock issued pursuant to an Approved Stock Plan that are covered by clause (A) above) is not lowered, none of such Convertible Securities (other than standard options to purchase Common Stock issued pursuant to an Approved Stock Plan that are covered by clause (A) above) are amended to increase the number of shares issuable thereunder and none of the terms or conditions of any such Convertible Securities (other than standard options to purchase Common Stock issued pursuant to an Approved Stock Plan that are covered by clause (A) above) are otherwise materially changed in any manner that adversely affects the Buyer; (C) the Common Shares, the Warrants and the Warrant Shares (each of the foregoing in clauses (A) through (C), collectively the "**Excluded Securities**"). "**Approved Stock Plan**" means any employee benefit plan which has been approved by the board of directors of the Company prior to or subsequent to the date hereof pursuant to which shares of Common Stock and standard options to purchase Common Stock may be

issued to any employee, officer or director for services provided to the Company in their capacity as such. “**Convertible Securities**” means any capital stock or other security of the Company or any of its Subsidiaries that is at any time and under any circumstances directly or indirectly convertible into, exercisable or exchangeable for, or which otherwise entitles the holder thereof to acquire, any capital stock or other security of the Company (including, without limitation, Common Stock) or any of its Subsidiaries.

(l) **Reservation of Shares.** So long as any portion of any of the Warrants remains outstanding, the Company shall take all action necessary to at all times have authorized, and reserved for the purpose of issuance, no less than 100% of the sum of the maximum number of Warrant Shares issuable upon exercise in full of the Warrants (without regard to any limitations on the exercise of the Warrants set forth therein) (collectively, the “**Required Reserve Amount**”); provided that at no time shall the number of shares of Common Stock reserved pursuant to this Section 4(l) be reduced other than proportionally in connection with any exercise of the Warrants. If at any time the number of shares of Common Stock authorized and reserved for issuance is not sufficient to meet the Required Reserve Amount, the Company will promptly take all corporate action necessary to authorize and reserve a sufficient number of shares, including, without limitation, calling a special meeting of stockholders to authorize additional shares to meet the Company’s obligations pursuant to the Transaction Documents, in the case of an insufficient number of authorized shares, obtain stockholder approval of an increase in such authorized number of shares, and voting the management shares of the Company in favor of an increase in the authorized shares of the Company to ensure that the number of authorized shares is sufficient to meet the Required Reserve Amount.

(m) **Conduct of Business.** The business of the Company and its Subsidiaries shall not be conducted in violation of any law, ordinance or regulation of any Governmental Entity, except where such violations would not reasonably be expected to result, either individually or in the aggregate, in a Material Adverse Effect.

(n) **Variable Securities.** From the date hereof until the earlier of (i) such time as the Buyer no longer holds any of the Warrants and (ii) one (1) year from the date hereof, the Company and each Subsidiary shall be prohibited from effecting or entering into an agreement to effect any Subsequent Placement involving a Variable Rate Transaction. “**Variable Rate Transaction**” means a transaction in which the Company (A) issues or sells any debt or equity securities that are convertible into, exchangeable or exercisable for, or include the right to receive additional shares of Common Stock either (1) at a conversion price, exercise price or exchange rate or other price that is based upon and/or varies with the trading prices of or quotations for the shares of Common Stock at any time after the initial issuance of such debt or equity securities, or (2) with a conversion, exercise or exchange price that is subject to being reset at some future date after the initial issuance of such debt or equity security or upon the occurrence of specified or contingent events directly or indirectly related to the business of the Company or the market for the Common Stock or (B) enters into any agreement (including, without limitation, an “equity line of credit” or an “at-the-market offering” (as defined in Rule 415(a)(4) under the 1933 Act)) with any Person other than the Buyer whereby the Company or any Subsidiary may sell securities at a future determined price. Notwithstanding the foregoing, beginning on the Trading Day immediately following the last day of the Restricted Period (and in no event during the Restricted Period), the Company may sell shares of Common Stock pursuant to a written equity distribution or sales

agreement between the Company and one or more registered broker-dealers providing for an “at- the-market offering” (as defined in Rule 415(a)(4) under the 1933 Act) by the Company exclusively through such registered broker-dealer(s) acting primarily as agent(s) of the Company, provided that the per share sales price is equal to or greater than \$3.275 per share (as adjusted for stock splits, reverse stock splits, stock dividends and similar events). The Buyer shall be entitled to obtain injunctive relief against the Company and its Subsidiaries to preclude any such issuance, which remedy shall be in addition to any right to collect damages.

(o) Participation Right. From the date hereof until the date that is the twelve (12) month anniversary of the Closing Date, neither the Company nor any of its Subsidiaries shall, directly or indirectly, effect or enter into any agreement to effect any Subsequent Placement for cash consideration (a “**Subsequent Financing**”), unless the Company shall have first complied with this Section 4(o).

(i) Between 4:00 p.m. and 7:00 p.m., New York time, on the Business Day immediately preceding the Business Day of a proposed or intended Subsequent Financing (each, a “**Subsequent Financing Date**”), the Company shall deliver to the Buyer a written notice of its intention to effect a Subsequent Financing (each, a “**Pre-Notice**”) (the Company shall use best efforts to ensure that the Buyer has received and acknowledged receipt of the Pre-Notice within such time period), which Pre-Notice shall not contain any information (including, without limitation, material, non-public information) other than: (x) a statement that the Company proposes or intends to effect a Subsequent Placement (without disclosing the specific terms or conditions of the proposed Subsequent Financing or the securities to be offered and sold therein), (y) a representation that such statement (described in clause (x) above) does not constitute material, non-public information regarding the Company, its business or its securities and (z) a statement informing the Buyer that it is entitled to receive a Subsequent Financing Notice (as defined below) containing material, non-public information with respect to such Subsequent Placement upon its timely written request in accordance with this Section 4(o).

(ii) If the Buyer consents to receive material, non-public information with respect to such Subsequent Placement, the Buyer shall deliver a written request therefor to the Company, not later than 9:00 p.m., New York time, on the Business Day on which the Buyer properly received such Pre-Notice from the Company, and upon such written request by the Buyer delivered to the Company prior to such time, and only upon such written request by the Buyer, the Company shall promptly thereafter, but not later than two (2) hours after such written request by the Buyer was properly delivered to the Company, deliver to the Buyer a written notice of the proposed Subsequent Financing (a “**Subsequent Financing Notice**”), which shall (A) describe in reasonable detail the proposed terms and conditions of such Subsequent Financing, including, without limitation, the proposed terms of the securities to be offered and sold in such Subsequent Financing (the “**Offered Securities**”), the total amount of proceeds intended to be raised and the Person or Persons through or with whom such Subsequent Financing is proposed to be effected, (B) include, as an attachment thereto, a term sheet or similar document setting forth the material terms and conditions of such Subsequent Financing, including, without limitation, the material terms of the Offered Securities, and (C) offer to issue and sell to the Buyer, upon the terms and subject to the conditions of the Subsequent Financing set forth in the Subsequent

Financing Notice, 50% of the Offered Securities (the “**Participation Maximum**”) at the same price per Offered Security to be paid by each other Person participating in such Subsequent Financing.

(iii) In the event that the Buyer elects to participate in such Subsequent Financing for all or any part of the Participation Maximum, the Buyer must deliver a written notice to the Company prior to the later of (i) 11:00 a.m., New York time, on the Business Day on which such proposed or intended Subsequent Financing shall occur and (ii) two (2) hours after the time that the applicable Subsequent Financing Notice is received by the Buyer (the “**Notice Termination Time**”), setting forth: (A) a statement that the Buyer elects to participate in such Subsequent Financing, (B) the amount of Offered Securities, which shall not exceed the Participation Maximum, that the Buyer elects to purchase in such Subsequent Financing, and (C) a representation that the Buyer has sufficient funds available to purchase such Offered Securities in such Subsequent Financing on the terms and subject to the conditions set forth in the applicable Subsequent Financing Notice received by the Buyer (the “**Notice of Acceptance**”). If the Company does not receive a Notice of Acceptance from the Buyer prior to the applicable Notice Termination Time, the Buyer shall be deemed to have elected not to participate in the Subsequent Financing on the terms set forth in the applicable Subsequent Financing Notice received by the Buyer.

(iv) Notwithstanding the foregoing, if the Company desires to change, modify or amend any of the terms or conditions of a Subsequent Financing, or the Offered Securities to be sold therein, set forth in a Subsequent Financing Notice delivered to the Buyer hereunder, the Company shall promptly, but not later than 10:00 p.m., New York time, on the Business Day immediately preceding the Business Day on which such Subsequent Financing is intended to occur, deliver to the Buyer a new written Subsequent Financing Notice describing in reasonable detail the terms and conditions of such Subsequent Financing and Offered Securities, as amended, and the Buyer will again have the right to participate in such Subsequent Financing upon the terms and conditions, as amended, set forth in such new Subsequent Financing Notice, provided the Buyer delivers to the Company a Notice of Acceptance providing the information described in the penultimate sentence of Section 4(o)(iii) above, prior to the Notice Termination Time with respect to such new Subsequent Financing Notice, which shall be the later of (I) 11:00 a.m., New York time, on the Business Day on which such proposed Subsequent Financing providing for such amended terms and conditions as set forth in the new Subsequent Financing Notice delivered to the Buyer hereunder is intended to occur and (II) two (2) hours after the time that such new Subsequent Financing Notice was received by the Buyer. If by the Notice Termination Time, the Buyer has delivered to the Company a Notice of Acceptance in which it has elected to purchase in such Subsequent Financing an aggregate amount of Offered Securities that is greater than the Participation Maximum, the Buyer shall be deemed to have elected to participate for the applicable Participation Maximum in the Subsequent Financing on the terms set forth in the applicable Subsequent Financing Notice received by the Buyer.

(v) If by the Notice Termination Time, the Buyer has elected to purchase in such Subsequent Financing an aggregate amount of Offered Securities that is equal to or

less than the Participation Maximum, as reflected in an Acceptance Notice delivered by the Buyer to the Company prior to the Termination Time, or the Buyer has not elected to participate in such Subsequent Financing, then the Company may (A) offer, issue and sell all or any part of such Offered Securities as to which a Notice of Acceptance has not been given by the Buyer, including any Offered Securities the Buyer did not elect to purchase pursuant to a Notice of Acceptance as part of the Participation Maximum (all such Offered Securities that are not designated in a Notice of Acceptance as Offered Securities to be purchased by the Buyer in such Subsequent Financing, the “**Other Securities**”), pursuant to a definitive agreement(s) (the “**Subsequent Financing Agreement**”), but only to the offerees described in the Subsequent Financing Notice and only upon terms and conditions (including, without limitation, unit prices and interest rates) that are not more favorable to the acquiring Person or Persons or less favorable to the Company than those set forth in the most recent Subsequent Financing Notice received by the Buyer and (B) to publicly announce (x) the execution of such Subsequent Financing Agreement, and (y) either (I) the consummation of the transactions contemplated by such Subsequent Financing Agreement or (II) the termination of such Subsequent Financing Agreement, which shall be filed with the SEC on a Current Report on Form 8-K with such Subsequent Financing Agreement and any documents contemplated therein filed as exhibits thereto. If a definitive agreement containing the terms and conditions of such Subsequent Financing as set forth in the Subsequent Financing Notice delivered to the Buyer is not entered into by the Company for any reason within five (5) Business Days after the date the initial Subsequent Financing Notice for such Subsequent Financing was first delivered to the Buyer hereunder, the Company shall promptly, but not later than 10:00 p.m., New York time, on the Business Day immediately preceding the Business Day on which such Subsequent Financing is intended to occur, deliver to the Buyer a new written Subsequent Financing Notice describing in reasonable detail the terms and conditions of such Subsequent Financing and Offered Securities, as amended, and the Buyer will again have the right to participate in such Subsequent Financing upon the terms and conditions, as amended, set forth in such new Subsequent Financing Notice, provided the Buyer delivers to the Company a Notice of Acceptance providing the information described in the penultimate sentence of Section 4(o)(iii) above, prior to the Notice Termination Time with respect to such new Subsequent Financing Notice, which shall be the time period described in Section 4(o)(iv) above.

(vi) In the event the Company shall propose to sell less than all the Refused Securities (any such sale to be in the manner and on the terms specified in Section 4(o)(v) above), then the Buyer may, at its sole option and in its sole discretion, reduce the number or amount of the Offered Securities specified in its Notice of Acceptance to an amount that shall be not less than the number or amount of the Offered Securities that the Buyer elected to purchase pursuant to Section 4(o)(iii) above multiplied by a fraction, (A) the numerator of which shall be the number or amount of Offered Securities the Company actually proposes to issue, sell or exchange (including Offered Securities to be issued or sold to Buyers pursuant to this Section 4(o) prior to such reduction) and (B) the denominator of which shall be the original amount of the Offered Securities. In the event that the Buyer so elects to reduce the number or amount of Offered Securities specified in its Notice of Acceptance, the Company may not issue, sell or exchange more than the reduced number or amount of the Offered Securities unless and until such securities have again been offered to the Buyer in accordance with Section 4(o)(i) and (ii) above.

(vii) Upon the closing of the issuance, sale or exchange of all or less than all of the Refused Securities, the Buyer shall acquire from the Company, and the Company shall issue to the Buyer, the number or amount of Offered Securities specified in its Notice of Acceptance, as reduced pursuant to Section 4(o)(vi) above if the Buyer has so elected, upon the terms and conditions specified in the Subsequent Financing Agreement. The purchase by the Buyer of any Offered Securities is subject in all cases to the preparation, execution and delivery by the Company and the Buyer of a separate purchase agreement relating to such Offered Securities reasonably satisfactory in form and substance to the Buyer and its counsel. Any Offered Securities not acquired by the Buyer or other Persons in accordance with this Section 4(o) may not be issued, sold or exchanged until they are again offered to the Buyer under the procedures specified in this Section 4(o).

(viii) The Company and the Buyer agree that if the Buyer elects to participate in the Subsequent Financing, neither the Subsequent Financing Agreement with respect to such Subsequent Financing nor any other transaction documents related thereto (collectively, the “**Subsequent Financing Documents**”) shall include any term or provision whereby the Buyer shall be required to agree to any restrictions on trading as to any securities of the Company or be required to consent to any amendment to or termination of, or grant any waiver, release or the like under or in connection with, any agreement previously entered into with the Company or any instrument received from the Company.

(ix) Notwithstanding anything to the contrary in this Section 4(o) and unless otherwise agreed to by the Buyer, the Company shall either confirm in writing to the Buyer that the transaction with respect to the Subsequent Financing has been abandoned or shall publicly disclose its intention to issue the Offered Securities, in either case, in such a manner such that the Buyer will not be in possession of any material, non-public information, by the fifth (5th) Business Day following delivery of the Subsequent Financing Notice. If by such fifth (5th) Business Day, no public disclosure regarding a transaction with respect to the Offered Securities has been made, and no notice regarding the abandonment of such transaction has been received by the Buyer, such transaction shall be deemed to have been abandoned and the Buyer shall not be in possession of any material, non-public information with respect to the Company or any of its Subsidiaries. Should the Company decide to pursue such transaction with respect to the Offered Securities, the Company shall provide the Buyer with another Subsequent Financing Notice and the Buyer will again have the right of participation set forth in this Section 4(o).

(x) The restrictions contained in this Section 4(o) shall not apply in connection with the issuance of any Excluded Securities.

(p) Passive Foreign Investment Company. The Company shall conduct its business, and shall cause its Subsidiaries to conduct their respective businesses, in such a manner as will ensure that the Company will not be deemed to constitute a passive foreign investment company within the meaning of Section 1297 of the Code.

(q) Corporate Existence. So long as the Buyer beneficially owns any portion of any of the Warrants, the Company shall not be party to any Fundamental Transaction (as defined in the

Warrant) unless the Company is in compliance with the applicable provisions governing Fundamental Transactions set forth in the Warrants.

(r) Exercise Procedures. The form of Exercise Notice (as defined in the Warrants) included in the Series E Warrants sets forth the totality of the procedures required of the Buyer in order to exercise the Series E Warrants. The form of Exercise Notice (as defined in the Warrants) included in the Series F Warrants sets forth the totality of the procedures required of the Buyer in order to exercise the Series F Warrants. No legal opinion or other information or instructions shall be required of the Buyer to exercise any portion of any of the Warrants. The Company shall honor exercises of the Warrants and shall deliver the applicable number of Warrant Shares in accordance with the terms, conditions and time periods set forth in the Warrants. Without limiting the preceding sentences, no ink-original Exercise Notice shall be required, nor shall any medallion guarantee (or other type of guarantee or notarization) of any Exercise Notice form be required in order to exercise any portion of any of the Warrants.

(s) Regulation M. The Company will not take any action prohibited by Regulation M under the 1934 Act, in connection with the distribution of the Securities contemplated hereby.

(t) Passive Foreign Investment Company. The Company shall conduct its business in such a manner as will ensure that the Company will not be deemed to constitute a passive foreign investment company within the meaning of Section 1297 of the Code.

(u) General Solicitation. None of the Company, any of its affiliates (as defined in Rule 501(b) under the 1933 Act) or any person acting on behalf of the Company or such affiliate will solicit any offer to buy or offer or sell the Series F Warrants or any Series F Warrant Shares by means of any form of general solicitation or general advertising within the meaning of Regulation D, including: (i) any advertisement, article, notice or other communication published in any newspaper, magazine or similar medium or broadcast over television or radio; and (ii) any seminar or meeting whose attendees have been invited by any general solicitation or general advertising.

(v) Integration. None of the Company, its Subsidiaries, their affiliates nor any Person acting on their behalf will take any action or steps that would (i) require registration of the offer, issuance or sale of the Series F Warrant or any of the Series F Warrant Shares under the 1933 Act, (ii) cause the offer, issuance or sale of the Common Shares and the Series E Securities to the Buyer hereunder pursuant to the Registration Statement to be integrated with any other offering of securities of the Company (including, without limitation, the offer, issuance or sale of the Series F Warrant or any of the Series F Warrant Shares, any prior or other offering of securities of the Company or otherwise), or (iii) cause the offer, issuance or sale of the Series F Warrant or any of the Series F Warrant Shares to be integrated with any other offering of securities of the Company (including, without limitation, the offer, issuance or sale of the Common Shares and the Series E Securities to the Buyer hereunder pursuant to the Registration Statement, any prior or other offering of securities of the Company or otherwise).

(w) Notice of Disqualification Events. The Company will notify the Buyer in writing, prior to the Closing Date of (i) any Disqualification Event relating to any Issuer Covered Person and (ii) any event that would, with the passage of time, reasonably be expected to become a

Disqualification Event relating to any Issuer Covered Person, in each case of which it is aware.

(x) Closing Documents. On or prior to fourteen (14) calendar days after the Closing Date, the Company agrees to deliver, or cause to be delivered, to the Buyer and Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C. a complete closing set of the executed Transaction Documents and any other document required to be delivered to any party pursuant to Section 7 hereof or otherwise.

5. REGISTER; TRANSFER AGENT INSTRUCTIONS; LEGEND.

(a) Register. The Company shall maintain at its principal executive offices (or such other office or agency of the Company as it may designate by notice to each holder of Securities), a register for the Common Shares and the Warrants in which the Company shall record the name and address of the Person in whose name the Common Shares and the Warrants have been issued (including the name and address of each transferee), the number of Common Shares held by such Person, the number of Series E Warrant Shares issuable upon exercise of the Series E Warrant held by such Person, and the number of Series E Warrant Shares issuable upon exercise of the Series E Warrant held by such Person. The Company shall keep the register open and available at all times during business hours for inspection of the Buyer or its legal representatives.

(b) Transfer Agent Instructions. The Company shall issue irrevocable instructions to its Transfer Agent and any subsequent transfer agent in a form acceptable to the Buyer (the “**Irrevocable Transfer Agent Instructions**”) to issue certificates or credit shares to the applicable balance accounts at DTC, registered in the name of the Buyer or its respective nominee(s), for the Common Shares and the Warrant Shares in such amounts as specified from time to time by the Buyer to the Company upon the exercise of the Warrants (as the case may be). The Company represents and warrants that no instruction other than the Irrevocable Transfer Agent Instructions referred to in this Section 5(b) will be given by the Company to its Transfer Agent with respect to the Securities, and that the Securities shall otherwise be freely transferable on the books and records of the Company, as applicable, to the extent provided in this Agreement and the other Transaction Documents. If the Buyer effects a sale, assignment or transfer of the Common Shares or Series E Warrant Shares, the Company shall permit the transfer and shall promptly instruct its Transfer Agent to issue one or more certificates or credit shares to the applicable balance accounts at DTC in such name and in such denominations as specified by the Buyer to effect such sale, transfer or assignment. In the event that such sale, assignment or transfer involves Series F Warrant Shares sold, assigned or transferred pursuant to an effective registration statement or in compliance with Rule 144 (assuming the transferor is not an affiliate of the Company), the transfer agent shall issue such shares to the Buyer, assignee or transferee (as the case may be) without any restrictive legend in accordance with Section 5(c) below. The Company acknowledges that a breach by it of its obligations hereunder will cause irreparable harm to the Buyer. Accordingly, the Company acknowledges that the remedy at law for a breach of its obligations under this Section 5(b) will be inadequate and agrees, in the event of a breach or threatened breach by the Company of the provisions of this Section 5(b), that the Buyer shall be entitled, in addition to all other available remedies, to an order and/or injunction restraining any breach and requiring immediate issuance and transfer, without the necessity of showing economic loss and without any bond or other security being required. The Company shall cause its counsel to issue each legal opinion referred to in the Irrevocable Transfer Agent Instructions to the Transfer Agent as follows:

(i) at the Closing with respect to the Common Shares, (ii) upon each exercise of the Warrants (unless such issuance covered by a prior legal opinion previously delivered to the Transfer Agent), and (iii) on each date a registration statement with respect to the issuance or resale of any of the Series F Warrant Shares is declared effective by the SEC. Any fees (with respect to the Transfer Agent, counsel to the Company or otherwise) associated with the issuance of such opinions or the removal of any legends on any of the Securities shall be borne by the Company.

(c) Legends. Certificates and any other instruments evidencing the Common Shares, the Series E Warrants or the Series E Warrant Shares shall not bear any restrictive or other legend. The Buyer understands that the Series F Warrant and the Series F Warrant Shares are being issued pursuant to an exemption from registration or qualification under the 1933 Act and applicable state securities laws, and except as set forth below, the Series F Warrant and the Series F Warrant Shares shall bear any legend as required by the “blue sky” laws of any state and a restrictive legend in substantially the following form (and a stop-transfer order may be placed against transfer of such stock certificates):

THE SECURITIES REPRESENTED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED, OR APPLICABLE STATE SECURITIES LAWS. THE SECURITIES MAY NOT BE OFFERED FOR SALE, SOLD, TRANSFERRED OR ASSIGNED (I) IN THE ABSENCE OF (A) AN EFFECTIVE REGISTRATION STATEMENT FOR THE SECURITIES UNDER THE SECURITIES ACT OF 1933, AS AMENDED, OR (B) AN OPINION OF COUNSEL TO THE HOLDER (IF REQUESTED BY THE COMPANY), IN A FORM REASONABLY ACCEPTABLE TO THE COMPANY, THAT REGISTRATION IS NOT REQUIRED UNDER SAID ACT OR (II) UNLESS SOLD OR ELIGIBLE TO BE SOLD PURSUANT TO RULE 144 OR RULE 144A UNDER SAID ACT. NOTWITHSTANDING THE FOREGOING, THE SECURITIES MAY BE PLEDGED IN CONNECTION WITH A BONA FIDE MARGIN ACCOUNT OR OTHER LOAN OR FINANCING ARRANGEMENT SECURED BY THE SECURITIES.

(d) Removal of Legends. Certificates evidencing the Series F Warrant Shares shall not be required to contain the legend set forth in Section 5(c) above or any other legend (i) while a registration statement covering the resale of such Series F Warrant Shares is effective under the 1933 Act, (ii) following any sale of such Series F Warrant Shares pursuant to Rule 144 (assuming the transferor is not an affiliate of the Company), (iii) if such Series F Warrant Shares are eligible to be sold, assigned or transferred under Rule 144 (provided that the Buyer provides the Company with reasonable assurances that such Series F Warrant Shares are eligible for sale, assignment or transfer under Rule 144 which shall not include an opinion of counsel), (iv) in connection with a sale, assignment or other transfer (other than under Rule 144), provided that the Buyer provides the Company with an opinion of counsel to the Buyer, in a generally acceptable form, to the effect that such sale, assignment or transfer of the Series F Warrant Shares may be made without registration under the applicable requirements of the 1933 Act or (v) if such legend is not required under applicable requirements of the 1933 Act (including, without limitation, controlling judicial interpretations and pronouncements issued by the SEC). If a legend is not required pursuant to the foregoing, the Company shall no later than two (2) Trading Days following the delivery by the Buyer to the

Company or the transfer agent (with notice to the Company) of a legended certificate representing such Series F Warrant Shares (endorsed or with stock powers attached, signatures guaranteed, and otherwise in form necessary to affect the reissuance and/or transfer, if applicable), together with any other deliveries from the Buyer as may be required above in this Section 5(c), as directed by the Buyer, either: (A) provided that the Company's transfer agent is participating in the DTC Fast Automated Securities Transfer Program, credit the aggregate number of Series F Warrant Shares to which the Buyer shall be entitled to the Buyer's or its designee's balance account with DTC through its Deposit/Withdrawal at Custodian system or (B) if the Company's transfer agent is not participating in the DTC Fast Automated Securities Transfer Program, issue and deliver (via reputable overnight courier) to the Buyer, a certificate representing such Series F Warrant Shares that is free from all restrictive and other legends, registered in the name of the Buyer or its designee (the date by which such credit is so required to be made to the balance account of the Buyer's or the Buyer's nominee with DTC or such certificate is required to be delivered to the Buyer pursuant to the foregoing is referred to herein as the "**Required Delivery Date**").

(e) Buy-In. If the Company fails to so properly deliver such unlegended certificates representing the aggregate number of Series F Warrant Shares to which the Buyer shall be entitled, or so properly credit the aggregate number of Series F Warrant Shares to which the Buyer shall be entitled to the Buyer's or its designee's balance account with DTC through its Deposit/Withdrawal at Custodian system, in each case by the Required Delivery Date, then, in addition to all other remedies available to the Buyer, (i) the Company shall, pay to the Buyer, in cash, as partial liquidated damages and not as a penalty, for each \$1,000 of Series F Warrant Shares (based on the VWAP of the Common Stock on the date such Series F Warrant Shares are submitted to the Transfer Agent) delivered for removal of the restrictive legend and subject to Section 5(d), \$10 per Trading Day (increasing to \$20 per Trading Day five (5) Trading Days after such damages have begun to accrue) for each Trading Day after the Legend Removal Date until such certificate is delivered without a legend or such credit to such balance account with DTC is made and (ii) if after the Legend Removal Date the Buyer purchases (in an open market transaction or otherwise) shares of Common Stock to deliver in satisfaction of a sale by the Buyer of all or any portion of the number of shares of Common Stock, or a sale of a number of shares of Common Stock equal to all or any portion of the number of shares of Common Stock, that the Buyer anticipated receiving from the Company without any restrictive legend, then an amount equal to the excess of the Buyer's total purchase price (including brokerage commissions and other out-of-pocket expenses, if any) for the shares of Common Stock so purchased (including brokerage commissions and other out-of-pocket expenses, if any) (the "**Buy-In Price**") over the product of (A) such number of Series F Warrant Shares that the Company was required to deliver to the Buyer by the Legend Removal Date multiplied by (B) the lowest closing sale price of the Common Stock on any Trading Day during the period commencing on the date of the delivery by the Buyer to the Company of the applicable Series F Warrant Shares (as the case may be) and ending on the date of such delivery and payment under this Section 5(e).

(f) FAST Compliance. While any portion of any of the Warrants remains outstanding, the Company shall maintain a transfer agent that participates in the DTC Fast Automated Securities Transfer Program.

6. CONDITIONS TO THE COMPANY'S OBLIGATION TO SELL.

The obligation of the Company hereunder to issue and sell the Common Shares and the Warrants to the Buyer at the Closing is subject to the satisfaction, at or before the Closing Date, of each of the following conditions, provided that these conditions are for the Company's sole benefit and may be waived by the Company at any time in its sole discretion by providing the Buyer with prior written notice thereof:

(a) The Buyer shall have executed this Agreement and delivered the same to the Company.

(b) The Buyer shall have delivered to the Company the Purchase Price for the Common Shares and the Warrants being purchased by the Buyer at the Closing (less the amount withheld pursuant to Section 4(g)) by wire transfer of immediately available funds in accordance with the Flow of Funds Letter.

(c) The representations and warranties of the Buyer shall be true and correct in all material respects as of the date when made and as of the Closing Date as though originally made at that time (except for representations and warranties that speak as of a specific date, which shall be true and correct as of such specific date), and the Buyer shall have performed, satisfied and complied in all material respects with the covenants, agreements and conditions required by this Agreement to be performed, satisfied or complied with by the Buyer at or prior to the Closing Date.

7. CONDITIONS TO THE BUYER'S OBLIGATION TO PURCHASE.

The obligation of the Buyer hereunder to purchase the Common Shares and the Warrants at the Closing is subject to the satisfaction, at or before the Closing Date, of each of the following conditions, provided that these conditions are for the Buyer's sole benefit and may be waived by the Buyer at any time in its sole discretion by providing the Company with prior written notice thereof:

(a) The Company shall have duly executed and delivered to the Buyer each of the Transaction Documents, and the Company shall have (A) caused the Transfer Agent to credit 271,744 Common Shares to the Buyer's or its designee's balance account with DTC through its Deposit/Withdrawal at Custodian system, (B) deliver to the Buyer the Series E Warrant (initially for an aggregate of up to 456,058 Series E Warrant Shares), duly executed on behalf of the Company and registered in the name of the Buyer or its designee, and (C) deliver to the Buyer the Series F Warrant (initially for an aggregate of up to 727,802 Series F Warrant Shares), duly executed on behalf of the Company and registered in the name of the Buyer or its designee.

(b) The Buyer shall have received the opinion of Sheppard, Mullin, Richter and Hampton LLP, the Company's counsel, dated as of the Closing Date, in the form reasonably acceptable to the Buyer.

(c) The Company shall have delivered to the Buyer a copy of the Irrevocable Transfer Agent Instructions, in the form reasonably acceptable to the Buyer, which instructions shall have been delivered to and acknowledged in writing by the Company's transfer agent.

(d) The Company shall have delivered to the Buyer a certificate evidencing the formation and good standing of the Company and each of its Subsidiaries in each such entity's jurisdiction of formation issued by the Secretary of State (or comparable office) of such jurisdiction of formation as of a date within ten (10) days of the Closing Date.

(e) The Company shall have delivered to the Buyer a certificate evidencing the Company's qualification as a foreign corporation and good standing issued by the Secretary of State (or comparable office) of each jurisdiction in which the Company conducts business and is required to so qualify, as of a date within ten (10) days of the Closing Date.

(f) The Company shall have delivered to the Buyer a certificate, in the form acceptable to the Buyer, executed by the Secretary of the Company and dated as of the Closing Date, as to (i) the resolutions consistent with Section 3(b) as adopted by the Company's board of directors in a form reasonably acceptable to the Buyer, (ii) the Certificate of Incorporation of the Company and (iii) the Bylaws of the Company, each as in effect at the Closing.

(g) Each and every representation and warranty of the Company shall be true and correct as of the date when made and as of the Closing Date as though originally made at that time (except for representations and warranties that speak as of a specific date, which shall be true and correct as of such specific date) and the Company shall have performed, satisfied and complied in all respects with the covenants, agreements and conditions required to be performed, satisfied or complied with by the Company at or prior to the Closing Date. The Buyer shall have received a certificate, duly executed by the Chief Executive Officer of the Company, dated as of the Closing Date, to the foregoing effect and as to such other matters as may be reasonably requested by the Buyer in the form acceptable to the Buyer.

(h) The Company shall have delivered to the Buyer a letter from the Transfer Agent certifying the number of shares of Common Stock outstanding on the Closing Date immediately prior to the Closing.

(i) The Common Stock (A) shall be designated for quotation or listed (as applicable) on the Principal Market and (B) shall not have been suspended, as of the Closing Date, by the SEC or the Principal Market from trading on the Principal Market nor shall suspension by the SEC or the Principal Market have been threatened, as of the Closing Date, either (I) in writing by the SEC or the Principal Market or (II) by falling below the minimum maintenance requirements of the Principal Market.

(j) The Company shall have obtained all governmental, regulatory or third party consents and approvals, if any, necessary for the sale of the Securities, including without limitation, those required by the Principal Market, if any.

(k) No statute, rule, regulation, executive order, decree, ruling or injunction shall have been enacted, entered, promulgated or endorsed by any court or Governmental Entity of competent jurisdiction that prohibits the consummation of any of the transactions contemplated by the Transaction Documents.

(l) Since the date of execution of this Agreement, no event or series of events shall have occurred that reasonably would have or result in a Material Adverse Effect.

(m) The Company shall have obtained approval of the Principal Market to list or designate for quotation (as the case may be) the Common Shares and the Warrant Shares.

(n) The Buyer shall have received a letter on the letterhead of the Company, duly executed by the Chief Executive Officer of the Company, setting forth the wire transfer instructions of the Company (the “**Flow of Funds Letter**”).

(o) From the date hereof to the Closing Date, (i) trading in the Common Stock shall not have been suspended by the SEC or the Principal Market (except for any suspension of trading of limited duration agreed to by the Company, which suspension shall be terminated prior to the Closing), and, (ii) at any time prior to the Closing Date, trading in securities generally as reported by Bloomberg L.P. shall not have been suspended or limited, or minimum prices shall not have been established on securities whose trades are reported by such service, or on the Principal Market, nor shall a banking moratorium have been declared either by the United States or New York State authorities nor shall there have occurred any material outbreak or escalation of hostilities or other national or international calamity of such magnitude in its effect on, or any material adverse change in, any financial market which, in each case, in the reasonable judgment of the Buyer, makes it impracticable or inadvisable to purchase the Securities at the Closing.

(p) The Registration Statement shall be effective and available for the issuance and sale to the Buyer hereunder of (i) 271,744 Common Shares and (ii) the Series E Warrant and up to 456,058 Series E Warrant Shares issuable upon exercise of the Series E Warrants.

(q) The Company shall have delivered to the Buyer the Prospectus and the Prospectus Supplement (which may be delivered in accordance with Rule 172 under the 1933 Act).

(r) The Company and its Subsidiaries shall have delivered to the Buyer such other documents, instruments or certificates relating to the transactions contemplated by this Agreement as the Buyer or its counsel may reasonably request.

8. TERMINATION.

In the event that the Closing shall not have occurred within five (5) days of the date hereof, then the Buyer shall have the right to terminate its obligations under this Agreement at any time on or after the close of business on such date without liability of the Buyer to the Company; provided, however, the right to terminate this Agreement under this Section 8 shall not be available to the Buyer if the failure of the transactions contemplated by this Agreement to have been consummated by such date is the result of the Buyer’s breach of this Agreement, provided further that no such termination shall affect any obligation of the Company under this Agreement to reimburse the Buyer for the expenses described in Section 4(g) above. Nothing contained in this Section 8 shall be deemed to release any party from any liability for any breach by such party of the terms and provisions of this Agreement or the other Transaction Documents or to impair the right of any party to compel specific performance by any other party of its obligations under this Agreement or the other Transaction Documents.

9. MISCELLANEOUS.

(a) Governing Law; Jurisdiction; Jury Trial. All questions concerning the construction, validity, enforcement and interpretation of this Agreement shall be governed by the internal laws of the State of New York, without giving effect to any choice of law or conflict of law provision or rule (whether of the State of New York or any other jurisdictions) that would cause the application of the laws of any jurisdictions other than the State of New York. The Company hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts sitting in The City of New York, Borough of Manhattan, for the adjudication of any dispute hereunder or in connection herewith or under any of the other Transaction Documents or with any transaction contemplated hereby or thereby, and hereby irrevocably waives, and agrees not to assert in any suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such suit, action or proceeding is brought in an inconvenient forum or that the venue of such suit, action or proceeding is improper. Each party hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof to such party at the address for such notices to it under this Agreement and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any manner permitted by law. Nothing contained herein shall be deemed to operate to preclude the Buyer from bringing suit or taking other legal action against the Company in any other jurisdiction to collect on the Company's obligations to the Buyer or to enforce a judgment or other court ruling in favor of the Buyer. **EACH PARTY HEREBY IRREVOCABLY WAIVES ANY RIGHT IT MAY HAVE TO, AND AGREES NOT TO REQUEST, A JURY TRIAL FOR THE ADJUDICATION OF ANY DISPUTE HEREUNDER OR UNDER ANY OTHER TRANSACTION DOCUMENT OR IN CONNECTION WITH OR ARISING OUT OF THIS AGREEMENT, ANY OTHER TRANSACTION DOCUMENT OR ANY TRANSACTION CONTEMPLATED HEREBY OR THEREBY.**

(b) Counterparts. This Agreement may be executed in two or more identical counterparts, all of which shall be considered one and the same agreement and shall become effective when counterparts have been signed by each party and delivered to the other party. In the event that any signature is delivered by facsimile transmission or by an e-mail which contains a portable document format (.pdf) file of an executed signature page, such signature page shall create a valid and binding obligation of the party executing (or on whose behalf such signature is executed) with the same force and effect as if such signature page were an original thereof.

(c) Headings; Gender. The headings of this Agreement are for convenience of reference and shall not form part of, or affect the interpretation of, this Agreement. Unless the context clearly indicates otherwise, each pronoun herein shall be deemed to include the masculine, feminine, neuter, singular and plural forms thereof. The terms "including," "includes," "include" and words of like import shall be construed broadly as if followed by the words "without limitation." The terms "herein," "hereunder," "hereof" and words of like import refer to this entire Agreement instead of just the provision in which they are found.

(d) Severability; Maximum Payment Amounts. If any provision of this Agreement is prohibited by law or otherwise determined to be invalid or unenforceable by a court of competent jurisdiction, the provision that would otherwise be prohibited, invalid or unenforceable shall be

deemed amended to apply to the broadest extent that it would be valid and enforceable, and the invalidity or unenforceability of such provision shall not affect the validity of the remaining provisions of this Agreement so long as this Agreement as so modified continues to express, without material change, the original intentions of the parties as to the subject matter hereof and the prohibited nature, invalidity or unenforceability of the provision(s) in question does not substantially impair the respective expectations or reciprocal obligations of the parties or the practical realization of the benefits that would otherwise be conferred upon the parties. The parties will endeavor in good faith negotiations to replace the prohibited, invalid or unenforceable provision(s) with a valid provision(s), the effect of which comes as close as possible to that of the prohibited, invalid or unenforceable provision(s). Notwithstanding anything to the contrary contained in this Agreement or any other Transaction Document (and without implication that the following is required or applicable), it is the intention of the parties that in no event shall amounts and value paid by the Company and/or any of its Subsidiaries (as the case may be), or payable to or received by any of the Buyer, under the Transaction Documents (including without limitation, any amounts that would be characterized as "interest" under applicable law) exceed amounts permitted under any applicable law. Accordingly, if any obligation to pay, payment made to the Buyer, or collection by the Buyer pursuant the Transaction Documents is finally judicially determined to be contrary to any such applicable law, such obligation to pay, payment or collection shall be deemed to have been made by mutual mistake of the Buyer, the Company and its Subsidiaries and such amount shall be deemed to have been adjusted with retroactive effect to the maximum amount or rate of interest, as the case may be, as would not be so prohibited by the applicable law. Such adjustment shall be effected, to the extent necessary, by reducing or refunding, at the option of the Buyer, the amount of interest or any other amounts which would constitute unlawful amounts required to be paid or actually paid to the Buyer under the Transaction Documents. For greater certainty, to the extent that any interest, charges, fees, expenses or other amounts required to be paid to or received by the Buyer under any of the Transaction Documents or related thereto are held to be within the meaning of "interest" or another applicable term to otherwise be violative of applicable law, such amounts shall be pro-rated over the period of time to which they relate.

(e) Entire Agreement; Amendments. This Agreement, the other Transaction Documents and the schedules and exhibits attached hereto and thereto and the instruments referenced herein and therein supersede all other prior oral or written agreements between the Buyer, the Company, its Subsidiaries, their affiliates and Persons acting on their behalf, and this Agreement, the other Transaction Documents, the schedules and exhibits attached hereto and thereto and the instruments referenced herein and therein contain the entire understanding of the parties solely with respect to the matters covered herein and therein; provided, however, nothing contained in this Agreement or any other Transaction Document shall (or shall be deemed to) (i) have any effect on any provision of the Term Sheet that is expressly binding on the Company and the Buyer, or any other agreements the Buyer has entered into with, or any instruments the Buyer has received from, the Company or any of its Subsidiaries prior to the date hereof with respect to any prior investment made by the Buyer in the Company or (ii) waive, alter, modify or amend in any respect any obligations of the Company, or any rights of or benefits to the Buyer or any other Person, in any provision of the Term Sheet that is expressly binding on the Company and the Buyer, in any other agreement entered into prior to the date hereof between or among the Company and/or any of its Subsidiaries and the Buyer, or in any instruments the Buyer received from the Company and/or any of its Subsidiaries prior to the date hereof, and all such binding provisions

contained in the Term Sheet and all such other agreements and instruments shall continue in full force and effect. Except as specifically set forth herein or therein, neither the Company nor the Buyer makes any representation, warranty, covenant or undertaking with respect to such matters. For clarification purposes, the Recitals are part of this Agreement. Provisions of this Agreement may be amended only with the written consent of the Company and the Buyer, and any amendment of any provision of this Agreement made in conformity with the provisions of this Section 9(e) shall be binding upon the Buyer and the Company. No waiver shall be effective unless it is in writing and signed by an authorized representative of the waiving party, and any waiver of any provision of this Agreement made in conformity with the provisions of this Section 9(e) shall be binding on the waiving party. The Company has not, directly or indirectly, made any agreements with the Buyer relating to the terms or conditions of the transactions contemplated by the Transaction Documents except as set forth in the Transaction Documents. Without limiting the foregoing, the Company confirms that, except as set forth in this Agreement, the Buyer has not made any commitment or promise or has any other obligation to provide any financing to the Company, any Subsidiary or otherwise. As a material inducement for the Buyer to enter into this Agreement, the Company expressly acknowledges and agrees that (i) no due diligence or other investigation or inquiry conducted by the Buyer, any of its advisors or any of its representatives shall affect the Buyer's right to rely on, or shall modify or qualify in any manner or be an exception to any of, the Company's representations and warranties contained in this Agreement or any other Transaction Document, (ii) nothing contained in the Registration Statement, the Prospectus or the Prospectus Supplement shall affect the Buyer's right to rely on, or shall modify or qualify in any manner or be an exception to any of, the Company's representations and warranties contained in this Agreement or any other Transaction Document and (iii) unless a provision of this Agreement or any other Transaction Document is expressly preceded by the phrase "except as disclosed in the SEC Documents," nothing contained in any of the SEC Documents shall affect the Buyer's right to rely on, or shall modify or qualify in any manner or be an exception to any of, the Company's representations and warranties contained in this Agreement or any other Transaction Document.

(f) Notices. Any notices, consents, waivers or other communications required or permitted to be given under the terms of this Agreement must be in writing and will be deemed to have been delivered: (i) upon receipt, when delivered personally; (ii) upon receipt, when sent by facsimile (provided confirmation of transmission is mechanically or electronically generated and kept on file by the sending party) or electronic mail; or (iii) one (1) Business Day after deposit with an overnight courier service with next day delivery specified, in each case, properly addressed to the party to receive the same. The addresses, facsimile numbers and e-mail addresses for such communications shall be:

If to the Company:

Trovagene, Inc.
110 Flintkote Avenue
San Diego, CA 92121
Telephone: (858) 952-7570
Facsimile: (858) 952-7571
Attention: Chief Executive Officer
E-Mail: tadams@trovagene.com

With a copy (for informational purposes only) to:

Sheppard, Mullin, Richter & Hampton LLP
30 Rockefeller Plaza, 39th Floor
New York, NY 10112
Telephone: (212) 653-8700
Facsimile: (212) 653-8701
Attention: Jeffrey J. Fessler, Esq.
E-Mail: jfessler@sheppardmullin.com

If to the Transfer Agent:

Philadelphia Stock Transfer, Inc.
2320 Haverford Rd., Suite 230
Ardmore, PA 19003
Telephone: (484) 416-3124
Facsimile: (484) 416-3597
Attention: Bob Winterle
E-Mail: bwinterle@philadelphiastocktransfer.com

If to the Buyer:

Lincoln Park Capital Fund, LLC
440 North Wells, Suite 410
Chicago, IL 60654
Telephone: (312) 822-9300
Facsimile: (312) 822-9301
Attention: Joshua Scheinfeld/Jonathan Cope
E-Mail: jscheinfeld@lpcfunds.com/jcope@lpcfunds.com

with a copy (for informational purposes only) to:

Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.
666 Third Avenue
New York, NY 10017
Telephone: (212) 692-6267
Facsimile: (212) 983-3115
Attention: Anthony J. Marsico, Esq.
Email: ajmarsico@mintz.com

or to such other address, e-mail address and/or facsimile number and/or to the attention of such other Person as the recipient party has specified by written notice given to each other party five (5) days prior to the effectiveness of such change. Written confirmation of receipt (A) given by the recipient of such notice, consent, waiver or other communication, (B) mechanically or electronically generated by the sender's facsimile machine or e-mail containing the time, date, recipient facsimile number and, with respect to each facsimile transmission, an image of the first page of such transmission or (C) provided by an overnight courier service shall be rebuttable

evidence of personal service, receipt by facsimile or receipt from an overnight courier service in accordance with clause (i), (ii) or (iii) above, respectively.

(g) Successors and Assigns. This Agreement shall be binding upon and inure to the benefit of the parties and their respective successors and assigns, including any subsequent purchasers of any of the Warrants (but excluding any purchasers of Underlying Securities, unless pursuant to a written assignment by the Buyer). The Company shall not assign this Agreement or any rights or obligations hereunder without the prior written consent of the Buyer, including, without limitation, by way of a Fundamental Transaction (as defined in the Warrants) (unless the Company is in compliance with the applicable provisions governing Fundamental Transactions set forth in the Warrants). The Buyer may assign some or all of its rights hereunder in connection with any transfer of any of its Securities without the consent of the Company, in which event such assignee shall be deemed to be the Buyer hereunder with respect to such assigned rights.

(h) No Third Party Beneficiaries. This Agreement is intended for the benefit of the parties hereto and their respective permitted successors and assigns, and is not for the benefit of, nor may any provision hereof be enforced by, any other Person, other than the Indemnitees referred to in Section 9(k).

(i) Survival. The representations, warranties, agreements and covenants shall survive the Closing.

(j) Further Assurances. Each party shall do and perform, or cause to be done and performed, all such further acts and things, and shall execute and deliver all such other agreements, certificates, instruments and documents, as any other party may reasonably request in order to carry out the intent and accomplish the purposes of this Agreement and the consummation of the transactions contemplated hereby.

(k) Indemnification.

(i) In consideration of the Buyer's execution and delivery of this Agreement and acquiring the Securities and in addition to all of the Company's other obligations under the Transaction Documents, the Company shall defend, protect, indemnify and hold harmless the Buyer and each holder of any Securities and all of their stockholders, partners, members, officers, directors, employees and direct or indirect investors and any of the foregoing Persons' agents or other representatives (including, without limitation, those retained in connection with the transactions contemplated by this Agreement) (collectively, the "**Indemnitees**") from and against any and all actions, causes of action, suits, claims, losses, costs, penalties, fees, liabilities and damages, and expenses in connection therewith (irrespective of whether any such Indemnitee is a party to the action for which indemnification hereunder is sought), and including reasonable attorneys' fees and disbursements (the "**Indemnified Liabilities**"), incurred by any Indemnitee as a result of, or arising out of, or relating to (i) any misrepresentation or breach of any representation or warranty made by the Company in any of the Transaction Documents, (ii) any breach of any covenant, agreement or obligation of the Company contained in any of the Transaction Documents, (iii) any cause of action, suit, proceeding or claim brought or made against such Indemnitee by a third party (including for these purposes a derivative action brought

on behalf of the Company or any Subsidiary) or which otherwise involves such Indemnitee that arises out of or results from (A) the execution, delivery, performance or enforcement of any of the Transaction Documents, (B) any transaction financed or to be financed in whole or in part, directly or indirectly, with the proceeds of the issuance of the Securities, (C) the status of the Buyer or holder of the Securities either as an investor in the Company pursuant to the transactions contemplated by the Transaction Documents or as a party to this Agreement (including, without limitation, as a party in interest or otherwise in any action or proceeding for injunctive or other equitable relief), or (D) with respect to any registration statement of the Company providing for the resale by the Buyer of any Series F Warrant Shares issued and issuable upon exercise of the Series F Warrants filed by the Company with the SEC, (1) any untrue or alleged untrue statement of a material fact contained in such registration statement, any prospectus or any form of prospectus or in any amendment or supplement thereto or in any preliminary prospectus, or arising out of or relating to any omission or alleged omission of a material fact required to be stated therein or necessary to make the statements therein (in the case of any prospectus or supplement thereto, in light of the circumstances under which they were made) not misleading, except to the extent, but only to the extent, that such untrue statements or omissions are based solely upon information regarding the Buyer furnished in writing to the Company by the Buyer expressly for use therein or (2) any violation or alleged violation by the Company of the 1933 Act, the 1934 Act or any state securities law, or any rule or regulation thereunder in connection therewith. To the extent that the foregoing undertaking by the Company may be unenforceable for any reason, the Company shall make the maximum contribution to the payment and satisfaction of each of the Indemnified Liabilities which is permissible under applicable law.

(ii) Promptly after receipt by an Indemnitee under this Section 9(k) of notice of the commencement of any action or proceeding (including any governmental action or proceeding) involving an Indemnified Liability, such Indemnitee shall, if a claim in respect thereof is to be made against the Company under this Section 9(k), deliver to the Company a written notice of the commencement thereof, and the Company shall have the right to participate in, and, to the extent the Company so desires, to assume control of the defense thereof with counsel mutually satisfactory to the Company and the Indemnitee; provided, however, that an Indemnitee shall have the right to retain its own counsel with the fees and expenses of such counsel to be paid by the Company if: (A) the Company has agreed in writing to pay such fees and expenses; (B) the Company shall have failed promptly to assume the defense of such Indemnified Liability and to employ counsel reasonably satisfactory to such Indemnitee in any such Indemnified Liability; or (C) the named parties to any such Indemnified Liability (including any impleaded parties) include both such Indemnitee and the Company, and such Indemnitee shall have been advised by counsel that a conflict of interest is likely to exist if the same counsel were to represent such Indemnitee and the Company (in which case, if such Indemnitee notifies the Company in writing that it elects to employ separate counsel at the expense of the Company, then the Company shall not have the right to assume the defense thereof and such counsel shall be at the expense of the Company), provided further, that in the case of clause (C) above the Company shall not be responsible for the reasonable fees and expenses of more than one (1) separate legal counsel for the Indemnitees. The Indemnitee shall reasonably cooperate with the Company in connection with any negotiation or defense of any such action or

Indemnified Liability by the Company and shall furnish to the Company all information reasonably available to the Indemnatee which relates to such action or Indemnified Liability. The Company shall keep the Indemnatee reasonably apprised at all times as to the status of the defense or any settlement negotiations with respect thereto. The Company shall not be liable for any settlement of any action, claim or proceeding effected without its prior written consent, provided, however, that the Company shall not unreasonably withhold, delay or condition its consent. The Company shall not, without the prior written consent of the Indemnatee, consent to entry of any judgment or enter into any settlement or other compromise which does not include as an unconditional term thereof the giving by the claimant or plaintiff to such Indemnatee of a release from all liability in respect to such Indemnified Liability or litigation, and such settlement shall not include any admission as to fault on the part of the Indemnatee. Following indemnification as provided for hereunder, the Company shall be subrogated to all rights of the Indemnatee with respect to all third parties, firms or corporations relating to the matter for which indemnification has been made. The failure to deliver written notice to the Company within a reasonable time of the commencement of any such action shall not relieve the Company of any liability to the Indemnatee under this Section 9(k), except to the extent that the Company is materially and adversely prejudiced in its ability to defend such action.

(iii) The indemnification required by this Section 9(k) shall be made by periodic payments of the amount thereof during the course of the investigation or defense, within ten (10) days after bills are received or Indemnified Liabilities are incurred.

(iv) The indemnity agreement contained herein shall be in addition to (A) any cause of action or similar right of the Indemnatee against the Company or others, and (B) any liabilities the Company may be subject to pursuant to the law.

(l) Construction. The language used in this Agreement will be deemed to be the language chosen by the parties to express their mutual intent, and no rules of strict construction will be applied against any party. No specific representation or warranty shall limit the generality or applicability of a more general representation or warranty. Each and every reference to share prices, shares of Common Stock and any other numbers in this Agreement that relate to the Common Stock shall be automatically adjusted for any stock splits, stock dividends, stock combinations, recapitalizations or other similar transactions that occur with respect to the Common Stock after the date of this Agreement. It is expressly understood and agreed that for all purposes of this Agreement, and without implication that the contrary would otherwise be true, neither transactions nor purchases nor sales shall include the location and/or reservation of borrowable shares of Common Stock.

(m) Remedies. The Buyer and in the event of assignment by Buyer of its rights and obligations hereunder, each holder of any Securities, shall have all rights and remedies set forth in the Transaction Documents and all rights and remedies which such holders have been granted at any time under any other agreement or contract and all of the rights which such holders have under any law. Any Person having any rights under any provision of this Agreement shall be entitled to enforce such rights specifically (without posting a bond or other security), to recover damages by reason of any breach of any provision of this Agreement and to exercise all other rights granted by law. Furthermore, the Company recognizes that in the event that it or any Subsidiary fails to

perform, observe, or discharge any or all of its or such Subsidiary's (as the case may be) obligations under the Transaction Documents, any remedy at law would inadequate relief to the Buyer. The Company therefore agrees that the Buyer shall be entitled to specific performance and/or temporary, preliminary and permanent injunctive or other equitable relief from any court of competent jurisdiction in any such case without the necessity of proving actual damages and without posting a bond or other security. The remedies provided in this Agreement and the other Transaction Documents shall be cumulative and in addition to all other remedies available under this Agreement and the other Transaction Documents, at law or in equity (including a decree of specific performance and/or other injunctive relief).

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

(o) Payment Set Aside; Currency. To the extent that the Company makes a payment or payments to the Buyer hereunder or pursuant to any of the other Transaction Documents or the Buyer enforce or exercise their rights hereunder or thereunder, and such payment or payments or the proceeds of such enforcement or exercise or any part thereof are subsequently invalidated, declared to be fraudulent or preferential, set aside, recovered from, disgorged by or are required to be refunded, repaid or otherwise restored to the Company, a trustee, receiver or any other Person under any law (including, without limitation, any bankruptcy law, foreign, state or federal law, common law or equitable cause of action), then to the extent of any such restoration the obligation or part thereof originally intended to be satisfied shall be revived and continued in full force and effect as if such payment had not been made or such enforcement or setoff had not occurred. Unless otherwise expressly indicated, all dollar amounts referred to in this Agreement and the other Transaction Documents are in United States Dollars ("**U.S. Dollars**"), and all amounts owing under this Agreement and all other Transaction Documents shall be paid in U.S. Dollars. All amounts denominated in other currencies (if any) shall be converted into the U.S. Dollar equivalent amount in accordance with the Exchange Rate on the date of calculation. "**Exchange Rate**" means, in relation to any amount of currency to be converted into U.S. Dollars pursuant to this Agreement, the U.S. Dollar exchange rate as published in the Wall Street Journal on the relevant date of calculation.

(p) Judgment Currency.

(i) If for the purpose of obtaining or enforcing judgment against the Company in connection with this Agreement or any other Transaction Document in any court in any jurisdiction it becomes necessary to convert into any other currency (such other currency being hereinafter in this Section 9(p) referred to as the “**Judgment Currency**”) an amount due in US Dollars under this Agreement, the conversion shall be made at the Exchange Rate prevailing on the Trading Day immediately preceding:

(1) the date actual payment of the amount due, in the case of any proceeding in the courts of New York or in the courts of any other jurisdiction that will give effect to such conversion being made on such date; or

(2) the date on which the foreign court determines, in the case of any proceeding in the courts of any other jurisdiction (the date as of which such conversion is made pursuant to this Section 9(p)(i)(1) being hereinafter referred to as the “**Judgment Conversion Date**”).

(ii) If in the case of any proceeding in the court of any jurisdiction referred to in Section 9(p)(i)(1) above, there is a change in the Exchange Rate prevailing between the Judgment Conversion Date and the date of actual payment of the amount due, the applicable party shall pay such adjusted amount as may be necessary to ensure that the amount paid in the Judgment Currency, when converted at the Exchange Rate prevailing on the date of payment, will produce the amount of US Dollars which could have been purchased with the amount of Judgment Currency stipulated in the judgment or judicial order at the Exchange Rate prevailing on the Judgment Conversion Date.

(iii) Any amount due from the Company under this provision shall be due as a separate debt and shall not be affected by judgment being obtained for any other amounts due under or in respect of this Agreement or any other Transaction Document.

(q) Liquidated Damages. The Company’s obligations to pay any partial liquidated damages or other amounts owing under the Transaction Documents is a continuing obligation of the Company and shall not terminate until all unpaid partial liquidated damages and other amounts have been paid notwithstanding the fact that the instrument or security pursuant to which such partial liquidated damages or other amounts are due and payable shall have been canceled.

[signature pages follow]

IN WITNESS WHEREOF, the Buyer and the Company have caused their respective signature page to this Agreement to be duly executed as of the date first written above.

COMPANY:

TROVAGENE, INC.

By: /s/ Thomas Adams
Name: Thomas Adams
Title: CEO

IN WITNESS WHEREOF, the Buyer and the Company have caused their respective signature page to this Agreement to be duly executed as of the date first written above.

BUYER:

LINCOLN PARK CAPITAL FUND, LLC

BY: LINCOLN PARK CAPITAL, LLC

BY: ROCKLEDGE CAPITAL CORPORATION

By: /s/ Joshua Scheinfeld

Name: Joshua Scheinfeld

Title: President

[FORM OF SERIES E WARRANT]

THE NUMBER OF SHARES OF COMMON STOCK ISSUABLE UPON EXERCISE OF THIS WARRANT MAY BE LESS THAN THE AMOUNTS SET FORTH ON THE FACE HEREOF PURSUANT TO SECTION 1(a) OF THIS SERIES E WARRANT.

TROVAGENE, INC.

SERIES E WARRANT TO PURCHASE COMMON STOCK

Series E Warrant No.: 1

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

Trovagene, Inc., a Delaware corporation (the “**Company**”), hereby certifies that, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Lincoln Park Capital Fund, LLC, the registered holder hereof or its permitted assigns (the “**Holder**”), is entitled, subject to the terms set forth below, to purchase from the Company, at the Exercise Price (as defined below) then in effect, upon exercise of this Series E Warrant to Purchase Common Stock (including any warrants to Purchase Common Stock issued in exchange, transfer or replacement hereof, the “**Series E Warrant**”), at any time or times on or after the Issuance Date, but not after 11:59 p.m., New York time, on the Expiration Date (as defined below), 456,058 (subject to adjustment as provided herein) fully paid and non-assessable shares of Common Stock (as defined below) (the “**Series E Warrant Shares**”). Except as otherwise defined herein, capitalized terms in this Series E Warrant shall have the meanings set forth in Section 17. This Series E Warrant is the Series E Warrant to Purchase Common Stock issued pursuant to (i) Section 1 of that certain Securities Purchase Agreement, dated as of August 20, 2019 (the “**Subscription Date**”), by and between the Company and Lincoln Park Capital Fund, LLC, as amended from time to time (the “**Securities Purchase Agreement**”) and (ii) the Company’s Registration Statement on Form S-3 (File number 333- 232321) (the “**Registration Statement**”).

1. EXERCISE OF WARRANT.

(a) Mechanics of Exercise. Subject to the terms and conditions hereof (including, without limitation, the limitations set forth in Section 1(f)), this Series E Warrant may be exercised by the Holder on any day on or after the Issuance Date (an “**Exercise Date**”), in whole or in part, by delivery (whether via facsimile or otherwise) of a written notice, in the form attached hereto as Exhibit A (the “**Exercise Notice**”), of the Holder’s election to exercise this Series E Warrant. Within one (1) Trading Day following an exercise of this Series E Warrant as aforesaid, the Holder shall deliver payment to the Company of an amount equal to the Exercise Price in effect on the date of such exercise multiplied by the number of Series E Warrant Shares as to which this Series E Warrant was so exercised (the “**Aggregate Exercise Price**”) in cash or via wire transfer of immediately available funds if the Holder did not notify the Company in such Exercise Notice that such exercise was made pursuant to a Cashless Exercise (as defined in Section 1(d)). The Holder shall not be required to deliver the original of this Series E Warrant in order to effect an exercise

hereunder. Execution and delivery of an Exercise Notice with respect to less than all of the Series E Warrant Shares shall have the same effect as cancellation of the original of this Series E Warrant and issuance of a new Series E Warrant evidencing the right to purchase the remaining number of Series E Warrant Shares. Execution and delivery of an Exercise Notice for all of the then-remaining Series E Warrant Shares shall have the same effect as cancellation of the original of this Series E Warrant after delivery of the Series E Warrant Shares in accordance with the terms hereof. On or before the first (1st) Trading Day following the date on which the Company has received an Exercise Notice, the Company shall transmit by facsimile or electronic mail an acknowledgment of confirmation of receipt of such Exercise Notice, in the form attached hereto as **Exhibit B**, to the Holder and the Company's transfer agent (the "**Transfer Agent**"), which confirmation shall constitute an instruction to the Transfer Agent to process such Exercise Notice in accordance with the terms herein. On or before the second (2nd) Trading Day following the date on which the Company has received such Exercise Notice (or such earlier date as required pursuant to the 1934 Act or other applicable law, rule or regulation for the settlement of a trade of such Series E Warrant Shares initiated on the applicable Exercise Date), the Company shall (i) provided that the Transfer Agent is participating in The Depository Trust Company ("**DTC**") Fast Automated Securities Transfer Program, upon the request of the Holder, credit such aggregate number of shares of Common Stock to which the Holder is entitled pursuant to such exercise to the Holder's or its designee's balance account with DTC through its Deposit/Withdrawal at Custodian system, or (ii) if the Transfer Agent is not participating in the DTC Fast Automated Securities Transfer Program, upon the request of the Holder, issue and deliver (via reputable overnight courier) to the address as specified in the Exercise Notice, a certificate, registered in the name of the Holder or its designee, for the number of shares of Common Stock to which the Holder shall be entitled pursuant to such exercise. Upon delivery of an Exercise Notice, the Holder shall be deemed for all corporate purposes to have become the holder of record of the Series E Warrant Shares with respect to which this Series E Warrant has been exercised, irrespective of the date such Series E Warrant Shares are credited to the Holder's DTC account or the date of delivery of the certificates evidencing such Series E Warrant Shares (as the case may be). If this Series E Warrant is submitted in connection with any exercise pursuant to this Section 1(a) and the number of Series E Warrant Shares represented by this Series E Warrant submitted for exercise is greater than the number of Series E Warrant Shares being acquired upon an exercise and upon surrender of this Series E Warrant to the Company by the Holder, then, at the request of the Holder, the Company shall as soon as practicable and in no event later than three (3) Business Days after any exercise and at its own expense, issue and deliver to the Holder (or its designee) a new Series E Warrant (in accordance with Section 7(d)) representing the right to purchase the number of Series E Warrant Shares purchasable immediately prior to such exercise under this Series E Warrant, less the number of Series E Warrant Shares with respect to which this Series E Warrant is exercised. No fractional shares of Common Stock are to be issued upon the exercise of this Series E Warrant, but rather the number of shares of Common Stock to be issued shall be rounded up to the nearest whole number. The Company shall pay any and all transfer, stamp, issuance and similar taxes, costs and expenses (including, without limitation, fees and expenses of the Transfer Agent) that may be payable with respect to the issuance and delivery of Series E Warrant Shares upon exercise of this Series E Warrant. Notwithstanding the foregoing, except in the case where an exercise of this Series E Warrant is validly made pursuant to a Cashless Exercise, the Company's failure to deliver Series E Warrant Shares to the Holder on or prior to the later of (A) two (2) Trading Days after receipt of the applicable Exercise Notice (or such earlier date as required pursuant to the 1934 Act or other

applicable law, rule or regulation for the settlement of a trade of such Series E Warrant Shares initiated on the applicable Exercise Date) and (B) one (1) Trading Day after the Company's receipt of the Aggregate Exercise Price (or valid notice of a Cashless Exercise) (such later date, the "**Share Delivery Deadline**") shall not be deemed to be a breach of this Series E Warrant. From the Issuance Date through and including the Expiration Date, the Company shall maintain a transfer agent that participates in the DTC's Fast Automated Securities Transfer Program.

(b) **Exercise Price.** The aggregate exercise price of this Series E Warrant, except for a nominal exercise price of \$0.01 per Series E Warrant Share, was pre-funded to the Company on or prior to the Issuance Date and, consequently, no additional consideration (other than the nominal exercise price of \$0.01 per Series E Warrant Share) shall be required to be paid by the Holder to any Person to effect any exercise of this Series E Warrant. The Holder shall not be entitled to the return or refund of all, or any portion, of such pre-paid aggregate exercise price under any circumstance or for any reason whatsoever, including in the event this Series E Warrant shall not have been exercised prior to the Expiration Date. The remaining unpaid exercise price per share of Common Stock under this Series E Warrant shall be \$0.01, subject to adjustment hereunder (the "**Exercise Price**").

(c) **Company's Failure to Timely Deliver Securities.** If the Company shall fail, for any reason or for no reason, on or prior to the Share Delivery Deadline, either (I) if the Transfer Agent is not participating in the DTC Fast Automated Securities Transfer Program, to issue and deliver to the Holder (or its designee) a certificate for the number of Series E Warrant Shares to which the Holder is entitled and register such Series E Warrant Shares on the Company's share register or, if the Transfer Agent is participating in the DTC Fast Automated Securities Transfer Program, to credit the balance account of the Holder or the Holder's designee with DTC for such number of Series E Warrant Shares to which the Holder is entitled upon the Holder's exercise of this Series E Warrant (as the case may be) or (II) if the Registration Statement (or prospectus contained therein) covering the issuance of the Series E Warrant Shares that are the subject of the Exercise Notice (the "**Unavailable Series E Warrant Shares**") is not available for the issuance of such Unavailable Series E Warrant Shares and the Company fails to promptly (x) so notify the Holder and (y) deliver the Series E Warrant Shares electronically without any restrictive legend by crediting such aggregate number of Series E Warrant Shares to which the Holder is entitled pursuant to such exercise to the Holder's or its designee's balance account with DTC through its Deposit/Withdrawal At Custodian system (the event described in the immediately foregoing clause (II) is hereinafter referred to as a "**Notice Failure**" and together with the event described in clause (I) above, a "**Delivery Failure**"), then, in addition to all other remedies available to the Holder, (X) the Company shall pay in cash to the Holder on each day after the Share Delivery Deadline and during such Delivery Failure an amount equal to 2% of the product of (A) the sum of the number of shares of Common Stock not issued to the Holder on or prior to the Share Delivery Deadline and to which the Holder is entitled, multiplied by (B) any trading price of the Common Stock selected by the Holder in writing as in effect at any time during the period beginning on the applicable Exercise Date and ending on the applicable Share Delivery Deadline, and (Y) the Holder, upon written notice to the Company, may void its Exercise Notice with respect to, and retain or have returned, as the case may be, any portion of this Series E Warrant that has not been exercised pursuant to such Exercise Notice; provided that the voiding of an Exercise Notice shall not affect the Company's obligations to make any payments which have accrued prior to the date of such notice pursuant to this Section 1(c) or otherwise. In addition to the foregoing, if on or prior

to the Share Delivery Deadline either (I) the Transfer Agent is not participating in the DTC Fast Automated Securities Transfer Program, the Company shall fail to issue and deliver to the Holder (or its designee) a certificate and register such shares of Common Stock on the Company's share register or, if the Transfer Agent is participating in the DTC Fast Automated Securities Transfer Program, the Transfer Agent shall fail to credit the balance account of the Holder or the Holder's designee with DTC for the number of shares of Common Stock to which the Holder is entitled upon the Holder's exercise hereunder or pursuant to the Company's obligation pursuant to clause (ii) below or (II) a Notice Failure occurs, and if on or after such Share Delivery Deadline the Holder purchases (in an open market transaction or otherwise) shares of Common Stock to deliver in satisfaction of a sale by the Holder of all or any portion of the number of shares of Common Stock issuable upon such exercise that the Holder is entitled to receive from the Company (a "**Buy-In**"), then, in addition to all other remedies available to the Holder, the Company shall, within three (3) Business Days after the Holder's request and in the Holder's discretion, either (i) pay cash to the Holder in an amount equal to the Holder's total purchase price (including brokerage commissions and other out-of-pocket expenses, if any) for the shares of Common Stock so purchased (including, without limitation, by any other Person in respect, or on behalf, of the Holder) (the "**Buy-In Price**"), at which point the Company's obligation to so issue and deliver such certificate (and to issue such shares of Common Stock) or credit the balance account of such Holder or such Holder's designee, as applicable, with DTC for the number of Series E Warrant Shares to which the Holder is entitled upon the Holder's exercise hereunder (as the case may be) (and to issue such Series E Warrant Shares) shall terminate, or (ii) promptly honor its obligation to so issue and deliver to the Holder a certificate or certificates representing such Series E Warrant Shares or credit the balance account of such Holder or such Holder's designee, as applicable, with DTC for the number of Series E Warrant Shares to which the Holder is entitled upon the Holder's exercise hereunder (as the case may be) and pay cash to the Holder in an amount equal to the excess (if any) of the Buy-In Price over the product of (A) such number of Series E Warrant Shares multiplied by (B) the lowest Closing Sale Price of the Common Stock on any Trading Day during the period commencing on the date of the applicable Exercise Notice and ending on the date of such issuance and payment under this clause (ii) (the "**Buy-In Payment Amount**"). Nothing shall limit the Holder's right to pursue any other remedies available to it hereunder, at law or in equity, including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Company's failure to timely deliver certificates representing shares of Common Stock (or to electronically deliver such shares of Common Stock) upon the exercise of this Series E Warrant as required pursuant to the terms hereof.

(d) **Cashless Exercise.** Notwithstanding anything contained herein to the contrary (other than Section 1(f) below), if at the time of exercise hereof the Registration Statement (or another registration statement) is not effective (or the prospectus contained therein is not available for use) for the issuance of all of the Series E Warrant Shares, then the Holder may, in its sole discretion, exercise this Series E Warrant in whole or in part by means of a "cashless exercise" (a "**Cashless Exercise**") in which the Holder shall be entitled to receive a number of Series E Warrant Shares equal to the quotient obtained by dividing [(A-B) (X)] by (A), where:

A= as applicable: (i) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise if such Notice of Exercise is (1) both executed and delivered pursuant to Section 1(a) hereof on a day that is not a Trading Day or (2) both executed and delivered pursuant to Section 1(a) hereof on a Trading

Day prior to the opening of “regular trading hours” (as defined in Rule 600(b)(64) of Regulation NMS promulgated under the federal securities laws) on such Trading Day, (ii) at the option of the Holder, either (y) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise or (z) the Bid Price of the Common Stock on the principal Trading Market as reported by Bloomberg L.P. as of the time of the Holder’s execution of the applicable Notice of Exercise if such Notice of Exercise is executed during “regular trading hours” on a Trading Day and is delivered within two (2) hours thereafter (including until two (2) hours after the close of “regular trading hours” on a Trading Day) pursuant to Section 1(a) hereof or (iii) the VWAP on the date of the applicable Notice of Exercise if the date of such Notice of Exercise is a Trading Day and such Notice of Exercise is both executed and delivered pursuant to Section 1(a) hereof after the close of “regular trading hours” on such Trading Day.

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

C = the number of Series E Warrant Shares that would be issuable upon exercise of this Series E Warrant in accordance with the terms of this Series E Warrant if such exercise were by means of a cash exercise rather than a Cashless Exercise.

If the Series E Warrant Shares are issued in a Cashless Exercise, the parties acknowledge and agree that in accordance with Section 3(a)(9) of the 1933 Act, the Series E Warrant Shares take on the registered characteristics of the Series E Warrants being exercised. The Company agrees not to take any position contrary to this Section 1(d).

(e) Disputes. In the case of a dispute as to the determination of the Exercise Price or the arithmetic calculation of the number of Series E Warrant Shares to be issued pursuant to the terms hereof, the Company shall promptly issue to the Holder the number of Series E Warrant Shares that are not disputed and resolve such dispute in accordance with Section 13.

(f) Limitations on Exercises. The Company shall not effect the exercise of any portion of this Series E Warrant, and the Holder shall not have the right to exercise any portion of this Series E Warrant, pursuant to the terms and conditions of this Series E Warrant and any such exercise shall be null and void and treated as if never made, to the extent that after giving effect to such exercise, the Holder together with the other Attribution Parties collectively would beneficially own in excess of 4.99% (the “**Maximum Percentage**”) of the shares of Common Stock outstanding immediately after giving effect to such exercise. For purposes of the foregoing sentence, the aggregate number of shares of Common Stock beneficially owned by the Holder and the other Attribution Parties shall include the number of shares of Common Stock held by the Holder and all other Attribution Parties plus the number of shares of Common Stock issuable upon exercise of this Series E Warrant with respect to which the determination of such sentence is being made, but shall exclude shares of Common Stock which would be issuable upon (A) exercise of the remaining, unexercised portion of this Series E Warrant beneficially owned by the Holder or any of the other Attribution Parties and (B) exercise or conversion of the unexercised or unconverted portion of any other securities of the Company (including, without limitation, any convertible notes or convertible preferred stock or warrants) beneficially owned by the Holder or

any other Attribution Party subject to a limitation on conversion or exercise analogous to the limitation contained in this Section 1(f). For purposes of this Section 1(f), beneficial ownership shall be calculated in accordance with Section 13(d) of the 1934 Act. For purposes of determining the number of outstanding shares of Common Stock the Holder may acquire upon the exercise of this Series E Warrant without exceeding the Maximum Percentage, the Holder may rely on the number of outstanding shares of Common Stock as reflected in (x) the Company's most recent Annual Report on Form 10-K, Quarterly Report on Form 10-Q, Current Report on Form 8-K or other public filing with the SEC, as the case may be, (y) a more recent public announcement by the Company or (z) any other written notice by the Company or the Transfer Agent, if any, setting forth the number of shares of Common Stock outstanding (the "**Reported Outstanding Share Number**"). If the Company receives an Exercise Notice from the Holder at a time when the actual number of outstanding shares of Common Stock is less than the Reported Outstanding Share Number, the Company shall (i) notify the Holder in writing of the number of shares of Common Stock then outstanding and, to the extent that such Exercise Notice would otherwise cause the Holder's beneficial ownership, as determined pursuant to this Section 1(f), to exceed the Maximum Percentage, the Holder must notify the Company of a reduced number of Series E Warrant Shares to be acquired pursuant to such Exercise Notice (the number of shares by which such purchase is reduced, the "**Reduction Shares**") and (ii) as soon as reasonably practicable, the Company shall return to the Holder any exercise price paid by the Holder for the Reduction Shares. For any reason at any time, upon the written or oral request of the Holder, the Company shall within one (1) Business Day confirm orally and in writing or by electronic mail to the Holder the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of the Company, including this Series E Warrant, by the Holder and any other Attribution Party since the date as of which the Reported Outstanding Share Number was reported. In the event that the issuance of shares of Common Stock to the Holder upon exercise of this Series E Warrant results in the Holder and the other Attribution Parties being deemed to beneficially own, in the aggregate, more than the Maximum Percentage of the number of outstanding shares of Common Stock (as determined under Section 13(d) of the 1934 Act), the number of shares so issued by which the Holder's and the other Attribution Parties' aggregate beneficial ownership exceeds the Maximum Percentage (the "**Excess Shares**") shall be deemed null and void and shall be cancelled ab initio, and the Holder shall not have the power to vote or to transfer the Excess Shares. As soon as reasonably practicable after the issuance of the Excess Shares has been deemed null and void, the Company shall return to the Holder the exercise price paid by the Holder for the Excess Shares. Upon delivery of a written notice to the Company, the Holder may from time to time increase (with such increase not effective until the sixty-first (61st) day after delivery of such notice) or decrease the Maximum Percentage to any other percentage not in excess of 9.99% as specified in such notice; provided that (i) any such increase in the Maximum Percentage will not be effective until the sixty-first (61st) day after such notice is delivered to the Company and (ii) any such increase or decrease will apply only to the Holder and the other Attribution Parties and not to any other holder of Series E Warrants that is not an Attribution Party of the Holder. For purposes of clarity, the shares of Common Stock issuable pursuant to the terms of this Series E Warrant in excess of the Maximum Percentage shall not be deemed to be beneficially owned by the Holder for any purpose including for purposes of Section 13(d) or Rule 16a-1(a)(1) of the 1934 Act. No prior inability to exercise this Series E Warrant pursuant to this paragraph shall have any effect on the applicability of the provisions of this paragraph with respect to any subsequent determination

of exercisability. The provisions of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 1(f) to the extent necessary to correct this paragraph or any portion of this paragraph which may be defective or inconsistent with the intended beneficial ownership limitation contained in this Section 1(f) or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitation contained in this paragraph may not be waived and shall apply to a successor holder of this Series E Warrant.

(g) Reservation of Shares.

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

(ii) Insufficient Authorized Shares. If, notwithstanding Section 1(g)(i) above, and not in limitation thereof, at any time while any of the Series E Warrants remain outstanding, the Company does not have a sufficient number of authorized and unreserved shares of Common Stock to satisfy its obligation to reserve the Required Reserve Amount (an "**Authorized Share Failure**"), then the Company shall immediately take all action necessary to increase the Company's authorized shares of Common Stock to an amount sufficient to allow the Company to reserve the Required Reserve Amount for all the Series E Warrants then outstanding. Without limiting the generality of the foregoing sentence, as soon as practicable after the date of the occurrence of an Authorized Share Failure, but in no event later than sixty (60) days after the occurrence of such Authorized Share Failure, the Company shall hold a meeting of its stockholders for the approval of an increase in the number of authorized shares of Common Stock. In connection with such meeting, the Company shall provide each stockholder with a proxy statement and shall use its best efforts to solicit its stockholders' approval of such increase in authorized shares of Common Stock and to cause its board of directors to recommend to the stockholders that

they approve such proposal. In the event that the Company is prohibited from issuing shares of Common Stock upon an exercise of this Series E Warrant due to the failure by the Company to have sufficient shares of Common Stock available out of the authorized but unissued shares of Common Stock (such unavailable number of shares of Common Stock, the “**Authorization Failure Shares**”), in lieu of delivering such Authorization Failure Shares to the Holder, the Company shall pay cash in exchange for the cancellation of such portion of this Series E Warrant exercisable into such Authorization Failure Shares at a price equal to the sum of (i) the product of (x) such number of Authorization Failure Shares and (y) the greatest Closing Sale Price of the Common Stock on any Trading Day during the period commencing on the date the Holder delivers the applicable Exercise Notice with respect to such Authorization Failure Shares to the Company and ending on the date of such issuance and payment under this Section 1(f); and (ii) to the extent the Holder purchases (in an open market transaction or otherwise) shares of Common Stock to deliver in satisfaction of a sale by the Holder of Authorization Failure Shares, any Buy-In Payment Amount, brokerage commissions and other out-of-pocket expenses, if any, of the Holder incurred in connection therewith. Nothing contained in this Section 1(g)(ii) shall limit any obligations of the Company under any provision of the Securities Purchase Agreement.

2. ADJUSTMENT OF EXERCISE PRICE AND NUMBER OF WARRANT SHARES. The Exercise Price and number of Series E Warrant Shares issuable upon exercise of this Series E Warrant are subject to adjustment from time to time as set forth in this Section 2.

(a) Stock Dividends and Splits. Without limiting any provision of Section 2(b), Section 3 or Section 4, if the Company, at any time on or after the date of the Securities Purchase Agreement, (i) pays a stock dividend on one or more classes of its then outstanding shares of Common Stock or otherwise makes a distribution on any class of capital stock that is payable in shares of Common Stock, (ii) subdivides (by any stock split, stock dividend, recapitalization or otherwise) one or more classes of its then outstanding shares of Common Stock into a larger number of shares or (iii) combines (by combination, reverse stock split or otherwise) one or more classes of its then outstanding shares of Common Stock into a smaller number of shares, then in each such case (a) the Exercise Price shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock outstanding immediately before such event and of which the denominator shall be the number of shares of Common Stock outstanding immediately after such event and (b) the number of Series E Warrant Shares that may be purchased upon exercise of this Series E Warrant shall be increased or decreased proportionately, so that after such adjustment the aggregate Exercise Price payable hereunder for the adjusted number of Series E Warrant Shares shall be the same as the aggregate Exercise Price in effect immediately prior to such adjustment (without regard to any limitations on exercise contained herein). Any adjustment made pursuant to clause (i) of this paragraph shall become effective immediately after the record date for the determination of shareholders entitled to receive such dividend or distribution, and any adjustment pursuant to clause (ii) or (iii) of this paragraph shall become effective immediately after the effective date of such subdivision or combination. If any event requiring an adjustment under this paragraph occurs during the period that an Exercise Price is calculated hereunder, then the calculation of such Exercise Price shall be adjusted appropriately to reflect such event.

(b) Other Events. In the event that the Company (or any Subsidiary (as defined in the Securities Purchase Agreement)) shall take any action to which the provisions hereof are not strictly applicable, or, if applicable, would not operate to protect the Holder from dilution or if any event occurs of the type contemplated by the provisions of this Section 2 but not expressly provided for by such provisions (including, without limitation, the granting of stock appreciation rights, phantom stock rights or other rights with equity features), then the Company's board of directors shall in good faith determine and implement an appropriate adjustment in the Exercise Price and the number of Series E Warrant Shares (if applicable) so as to protect the rights of the Holder, provided that no such adjustment pursuant to this Section 2(b) will increase the Exercise Price or decrease the number of Series E Warrant Shares as otherwise determined pursuant to this Section 2, provided further that if the Holder does not accept such adjustments as appropriately protecting its interests hereunder against such dilution, then the Company's board of directors and the Holder shall agree, in good faith, upon an independent investment bank of nationally recognized standing to make such appropriate adjustments, whose determination shall be final and binding absent manifest error and whose fees and expenses shall be borne by the Company.

(c) Calculations. All calculations under this Section 2 shall be made by rounding to the nearest cent or the nearest 1/100th of a share, as applicable. The number of shares of Common Stock outstanding at any given time shall not include shares owned or held by or for the account of the Company, and the disposition of any such shares shall be considered an issuance or sale of Common Stock.

(d) Intentionally omitted.

(e) Par Value. Notwithstanding anything to the contrary in this Series E Warrant, in no event shall the Exercise Price be reduced below the par value of the Company's Common Stock.

3. RIGHTS UPON DISTRIBUTION OF ASSETS. In addition to any adjustments pursuant to Section 2 above, if the Company shall declare or make any dividend or other distribution of its assets (or rights to acquire its assets) to holders of shares of Common Stock, by way of return of capital or otherwise (including, without limitation, any distribution of cash, stock or other securities, property, options, evidence of indebtedness or any other assets by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) (a "**Distribution**"), at any time after the issuance of this Series E Warrant, then, in each such case, the Holder shall be entitled to participate in such Distribution to the same extent that the Holder would have participated therein if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Series E Warrant (without regard to any limitations or restrictions on exercise of this Series E Warrant, including without limitation, the Maximum Percentage) immediately before the date on which a record is taken for such Distribution, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the participation in such Distribution (provided, however, that to the extent that the Holder's right to participate in any such Distribution would result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, then the Holder shall not be entitled to participate in such Distribution to the extent of the Maximum Percentage (and shall not be entitled to beneficial ownership of such shares of Common Stock as a result of such Distribution (and beneficial ownership) to the extent of any such excess) and the portion of such Distribution shall be held in abeyance for the benefit of the Holder until such time or times, if ever,

as its right thereto would not result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, at which time or times the Holder shall be granted such Distribution (and any Distributions declared or made on such initial Distribution or on any subsequent Distribution held similarly in abeyance) to the same extent as if there had been no such limitation).

4. PURCHASE RIGHTS; FUNDAMENTAL TRANSACTIONS.

(a) Purchase Rights. In addition to any adjustments pursuant to Section 2 above, if at any time the Company grants, issues or sells any Options, Convertible Securities or rights to purchase stock, warrants, securities or other property pro rata to the record holders of any class of Common Stock (the "**Purchase Rights**"), then the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Series E Warrant (without regard to any limitations or restrictions on exercise of this Series E Warrant, including without limitation, the Maximum Percentage) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the grant, issuance or sale of such Purchase Rights (provided, however, that to the extent that the Holder's right to participate in any such Purchase Right would result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, then the Holder shall not be entitled to participate in such Purchase Right to the extent of the Maximum Percentage (and shall not be entitled to beneficial ownership of such shares of Common Stock as a result of such Purchase Right (and beneficial ownership) to the extent of any such excess) and such Purchase Right to such extent shall be held in abeyance for the benefit of the Holder until such time or times, if ever, as its right thereto would not result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, at which time or times the Holder shall be granted such right (and any Purchase Right granted, issued or sold on such initial Purchase Right or on any subsequent Purchase Right held similarly in abeyance) to the same extent as if there had been no such limitation).

(b) Fundamental Transactions. The Company shall not enter into or be party to a Fundamental Transaction unless (i) the Successor Entity assumes in writing all of the obligations of the Company under this Series E Warrant and the other Transaction Documents (as defined in the Securities Purchase Agreement) in accordance with the provisions of this Section 4(b) pursuant to written agreements in form and substance satisfactory to the Holder and approved by the Holder prior to such Fundamental Transaction, including agreements to deliver to the Holder in exchange for this Series E Warrant a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Series E Warrant, including, without limitation, which is exercisable for a corresponding number of shares of capital stock equivalent to the shares of Common Stock acquirable and receivable upon exercise of this Series E Warrant (without regard to any limitations on the exercise of this Series E Warrant) prior to such Fundamental Transaction, and with an exercise price which applies the exercise price hereunder to such shares of capital stock (but taking into account the relative value of the shares of Common Stock pursuant to such Fundamental Transaction and the value of such shares of capital stock, such adjustments to the number of shares of capital stock and such exercise price being for the purpose of protecting the economic value of this Series E Warrant immediately prior to the consummation of such Fundamental Transaction) and (ii) the Successor Entity (including its Parent Entity) is a publicly

traded corporation whose common stock is quoted on or listed for trading on an Eligible Market. Upon the consummation of each Fundamental Transaction, the Successor Entity shall succeed to, and be substituted for (so that from and after the date of the applicable Fundamental Transaction, the provisions of this Series E Warrant and the other Transaction Documents referring to the “Company” shall refer instead to the Successor Entity), and may exercise every right and power of the Company and shall assume all of the obligations of the Company under this Series E Warrant and the other Transaction Documents with the same effect as if such Successor Entity had been named as the Company herein. Upon consummation of each Fundamental Transaction, the Successor Entity shall deliver to the Holder confirmation that there shall be issued upon exercise of this Series E Warrant at any time after the consummation of the applicable Fundamental Transaction, in lieu of the shares of Common Stock (or other securities, cash, assets or other property (except such items still issuable under Sections 3 and 4(a) above, which shall continue to be receivable thereafter)) issuable upon the exercise of this Series E Warrant prior to the applicable Fundamental Transaction, such shares of publicly traded common stock (or its equivalent) of the Successor Entity (including its Parent Entity) which the Holder would have been entitled to receive upon the happening of the applicable Fundamental Transaction had this Series E Warrant been exercised immediately prior to the applicable Fundamental Transaction (without regard to any limitations on the exercise of this Series E Warrant), as adjusted in accordance with the provisions of this Series E Warrant. Notwithstanding the foregoing, and without limiting Section 1(f) hereof, the Holder may elect, at its sole option, by delivery of written notice to the Company to waive this Section 4(b) to permit the Fundamental Transaction without the assumption of this Series E Warrant. In addition to and not in substitution for any other rights hereunder, prior to the consummation of each Fundamental Transaction pursuant to which holders of shares of Common Stock are entitled to receive securities or other assets with respect to or in exchange for shares of Common Stock (a “**Corporate Event**”), the Company shall make appropriate provision to insure that the Holder will thereafter have the right to receive upon an exercise of this Series E Warrant at any time after the consummation of the applicable Fundamental Transaction but prior to the Expiration Date, in lieu of the shares of the Common Stock (or other securities, cash, assets or other property (except such items still issuable under Sections 3 and 4(a) above, which shall continue to be receivable thereafter)) issuable upon the exercise of the Series E Warrant prior to such Fundamental Transaction, such shares of stock, securities, cash, assets or any other property whatsoever (including warrants or other purchase or subscription rights) which the Holder would have been entitled to receive upon the happening of the applicable Fundamental Transaction had this Series E Warrant been exercised immediately prior to the applicable Fundamental Transaction (without regard to any limitations on the exercise of this Series E Warrant). Provision made pursuant to the preceding sentence shall be in a form and substance reasonably satisfactory to the Holder.

(c) Application. The provisions of this Section 4 shall apply similarly and equally to successive Fundamental Transactions and Corporate Events and shall be applied as if this Series E Warrant (and any such subsequent warrants) were fully exercisable and without regard to any limitations on the exercise of this Series E Warrant (provided that the Holder shall continue to be entitled to the benefit of the Maximum Percentage, applied however with respect to shares of capital stock registered under the 1934 Act and thereafter receivable upon exercise of this Series E Warrant (or any such other warrant)).

5. NONCIRCUMVENTION. The Company hereby covenants and agrees that the Company will not, by amendment of its Certificate of Incorporation (as defined in the Securities Purchase Agreement), Bylaws (as defined in the Securities Purchase Agreement) or through any reorganization, transfer of assets, consolidation, merger, scheme of arrangement, dissolution, issuance or sale of securities, or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Series E Warrant, and will at all times in good faith carry out all the provisions of this Series E Warrant and take all action as may be required to protect the rights of the Holder. Without limiting the generality of the foregoing, the Company (a) shall not increase the par value of any shares of Common Stock receivable upon the exercise of this Series E Warrant above the Exercise Price then in effect, and (b) shall take all such actions as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and non-assessable shares of Common Stock upon the exercise of this Series E Warrant. Notwithstanding anything herein to the contrary, if after the sixty (60) calendar day anniversary of the Issuance Date, the Holder is not permitted to exercise this Series E Warrant in full for any reason (other than pursuant to restrictions set forth in Section 1(f) hereof), the Company shall use its best efforts to promptly remedy such failure, including, without limitation, obtaining such consents or approvals as necessary to permit such exercise into shares of Common Stock.

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

7. REISSUANCE OF WARRANTS.

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

(b) Lost, Stolen or Mutilated Warrant. Upon receipt by the Company of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Series E Warrant (as to which a written certification and the indemnification contemplated below shall suffice as such evidence), and, in the case of loss, theft or destruction, of any indemnification undertaking by the Holder to the Company in customary and reasonable form and, in the case of mutilation, upon surrender and cancellation of this Series E Warrant, the Company shall execute and deliver to the Holder a new Series E Warrant (in accordance with Section 7(d)) representing the right to purchase the Series E Warrant Shares then underlying this Series E Warrant.

(c) Exchangeable for Multiple Warrants. This Series E Warrant is exchangeable, upon the surrender hereof by the Holder at the principal office of the Company, for a new Series E Warrant or Series E Warrants (in accordance with Section 7(d)) representing in the aggregate the right to purchase the number of Series E Warrant Shares then underlying this Series E Warrant, and each such new Series E Warrant will represent the right to purchase such portion of such Series E Warrant Shares as is designated by the Holder at the time of such surrender; provided, however, no warrants for fractional shares of Common Stock shall be given.

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

8. NOTICES. Whenever notice is required to be given under this Series E Warrant, unless otherwise provided herein, such notice shall be given in accordance with Section 9(f) of the Securities Purchase Agreement. The Company shall provide the Holder with prompt written notice of all actions taken pursuant to this Series E Warrant (other than the issuance of shares of Common Stock upon exercise in accordance with the terms hereof), including in reasonable detail a description of such action and the reason therefor. Without limiting the generality of the foregoing, the Company will give written notice to the Holder (i) immediately upon each adjustment of the Exercise Price and the number of Series E Warrant Shares, setting forth in reasonable detail, and certifying, the calculation of such adjustment(s), (ii) at least ten Trading Days prior to the date on which the Company closes its books or takes a record (A) with respect to any dividend or distribution upon the shares of Common Stock, (B) with respect to any grants, issuances or sales of any Options, Convertible Securities or rights to purchase stock, warrants, securities or other property to holders of shares of Common Stock or (C) for determining rights to vote with respect to any Fundamental Transaction, dissolution or liquidation, provided in each case that such information shall be made known to the public prior to or in conjunction with such notice being provided to the Holder, and (iii) at least ten (10) Trading Days prior to the consummation of any Fundamental Transaction. To the extent that any notice provided hereunder constitutes, or contains, material, non-public information regarding the Company or any of its Subsidiaries, the

Company shall simultaneously file such notice with the SEC (as defined in the Securities Purchase Agreement) pursuant to a Current Report on Form 8-K. If the Company or any of its Subsidiaries provides material non-public information to the Holder that is not simultaneously filed in a Current Report on Form 8-K and the Holder has not agreed to receive such material non-public information, the Company hereby covenants and agrees that the Holder shall not have any duty of confidentiality to the Company, any of its Subsidiaries or any of their respective officers, directors, employees, Affiliates or agents with respect to, or a duty to any of the foregoing not to trade on the basis of, such material non-public information. It is expressly understood and agreed that the time of execution specified by the Holder in each Exercise Notice shall be definitive and may not be disputed or challenged by the Company.

9. **AMENDMENT AND WAIVER.** Except as otherwise provided herein, the provisions of this Series E Warrant (other than Section 1(f)) may be amended and the Company may take any action herein prohibited, or omit to perform any act herein required to be performed by it, only if the Company has obtained the written consent of the Holder. No waiver shall be effective unless it is in writing and signed by an authorized representative of the waiving party.

10. **SEVERABILITY.** If any provision of this Series E Warrant is prohibited by law or otherwise determined to be invalid or unenforceable by a court of competent jurisdiction, the provision that would otherwise be prohibited, invalid or unenforceable shall be deemed amended to apply to the broadest extent that it would be valid and enforceable, and the invalidity or unenforceability of such provision shall not affect the validity of the remaining provisions of this Series E Warrant so long as this Series E Warrant as so modified continues to express, without material change, the original intentions of the parties as to the subject matter hereof and the prohibited nature, invalidity or unenforceability of the provision(s) in question does not substantially impair the respective expectations or reciprocal obligations of the parties or the practical realization of the benefits that would otherwise be conferred upon the parties. The parties will endeavor in good faith negotiations to replace the prohibited, invalid or unenforceable provision(s) with a valid provision(s), the effect of which comes as close as possible to that of the prohibited, invalid or unenforceable provision(s).

11. **GOVERNING LAW.** This Series E Warrant shall be governed by and construed and enforced in accordance with, and all questions concerning the construction, validity, interpretation and performance of this Series E Warrant shall be governed by, the internal laws of the State of New York, without giving effect to any choice of law or conflict of law provision or rule (whether of the State of New York or any other jurisdictions) that would cause the application of the laws of any jurisdictions other than the State of New York. The Company hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof to the Company at the address set forth in Section 9(f) of the Securities Purchase Agreement and agrees that such service shall constitute good and sufficient service of process and notice thereof. The Company hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts sitting in The City of New York, Borough of Manhattan, for the adjudication of any dispute hereunder or in connection herewith or with any transaction contemplated hereby or discussed herein, and hereby irrevocably waives, and agrees not to assert in any suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such suit, action or proceeding is brought in an inconvenient forum or that the venue of such suit, action or proceeding is improper. Nothing contained herein shall be deemed

to limit in any way any right to serve process in any manner permitted by law. Nothing contained herein shall be deemed or operate to preclude the Holder from bringing suit or taking other legal action against the Company in any other jurisdiction to collect on the Company's obligations to the Holder, to realize on any collateral or any other security for such obligations, or to enforce a judgment or other court ruling in favor of the Holder. **THE COMPANY HEREBY IRREVOCABLY WAIVES ANY RIGHT IT MAY HAVE TO, AND AGREES NOT TO REQUEST, A JURY TRIAL FOR THE ADJUDICATION OF ANY DISPUTE HEREUNDER OR IN CONNECTION WITH OR ARISING OUT OF THIS SERIES E WARRANT OR ANY TRANSACTION CONTEMPLATED HEREBY.**

12. CONSTRUCTION; HEADINGS. This Series E Warrant shall be deemed to be jointly drafted by the Company and the Holder and shall not be construed against any Person as the drafter hereof. The headings of this Series E Warrant are for convenience of reference and shall not form part of, or affect the interpretation of, this Series E Warrant. Terms used in this Series E Warrant but defined in the other Transaction Documents shall have the meanings ascribed to such terms on the Closing Date (as defined in the Securities Purchase Agreement) in such other Transaction Documents unless otherwise consented to in writing by the Holder.

13. DISPUTE RESOLUTION.

(a) Submission to Dispute Resolution.

(i) In the case of a dispute relating to the Exercise Price, the Closing Sale Price, or fair market value or the arithmetic calculation of the number of Series E Warrant Shares (as the case may be) (including, without limitation, a dispute relating to the determination of any of the foregoing), the Company or the Holder (as the case may be) shall submit the dispute to the other party via facsimile (A) if by the Company, within two (2) Business Days after the occurrence of the circumstances giving rise to such dispute or (B) if by the Holder, at any time after the Holder learned of the circumstances giving rise to such dispute. If the Holder and the Company are unable to promptly resolve such dispute relating to such Exercise Price, such Closing Sale Price or such fair market value or such arithmetic calculation of the number of Series E Warrant Shares (as the case may be), at any time after the second (2nd) Business Day following such initial notice by the Company or the Holder (as the case may be) of such dispute to the Company or the Holder (as the case may be), then the Holder may, at its sole option, select an independent, reputable investment bank to resolve such dispute.

(ii) The Holder and the Company shall each deliver to such investment bank (A) a copy of the initial dispute submission so delivered in accordance with the first sentence of this Section 13 and (B) written documentation supporting its position with respect to such dispute, in each case, no later than 5:00 p.m. (New York time) by the fifth (5th) Business Day immediately following the date on which the Holder selected such investment bank (the "**Dispute Submission Deadline**") (the documents referred to in the immediately preceding clauses (A) and (B) are collectively referred to herein as the "**Required Dispute Documentation**") (it being understood and agreed that if either the Holder or the Company fails to so deliver all of the Required Dispute Documentation by the Dispute Submission Deadline, then the party who fails to so submit all of the Required

Dispute Documentation shall no longer be entitled to (and hereby waives its right to) deliver or submit any written documentation or other support to such investment bank with respect to such dispute and such investment bank shall resolve such dispute based solely on the Required Dispute Documentation that was delivered to such investment bank prior to the Dispute Submission Deadline). Unless otherwise agreed to in writing by both the Company and the Holder or otherwise requested by such investment bank, neither the Company nor the Holder shall be entitled to deliver or submit any written documentation or other support to such investment bank in connection with such dispute (other than the Required Dispute Documentation).

(iii) The Company and the Holder shall cause such investment bank to determine the resolution of such dispute and notify the Company and the Holder of such resolution no later than ten (10) Business Days immediately following the Dispute Submission Deadline. The fees and expenses of such investment bank shall be borne solely by the Company, and such investment bank's resolution of such dispute shall be final and binding upon all parties absent manifest error.

(b) Miscellaneous. The Company expressly acknowledges and agrees that (i) this Section 13 constitutes an agreement to arbitrate between the Company and the Holder (and constitutes an arbitration agreement) under the rules then in effect under § 7501, et seq. of the New York Civil Practice Law and Rules ("CPLR") and that the Holder is authorized to apply for an order to compel arbitration pursuant to CPLR § 7503(a) in order to compel compliance with this Section 13, (ii) a dispute relating to the Exercise Price includes, without limitation, disputes as to (A) whether an issuance or sale or deemed issuance or sale of Common Stock occurred under Section 2(b), (B) the consideration per share at which an issuance or deemed issuance of Common Stock occurred, and (C) whether an agreement, instrument, security or the like constitutes and Option or Convertible Security, (iii) the terms of this Series E Warrant and each other applicable Transaction Document shall serve as the basis for the selected investment bank's resolution of the applicable dispute, such investment bank shall be entitled (and is hereby expressly authorized) to make all findings, determinations and the like that such investment bank determines are required to be made by such investment bank in connection with its resolution of such dispute (including, without limitation, determining (A) whether an issuance or sale or deemed issuance or sale of Common Stock occurred under Section 2(b), (B) the consideration per share at which an issuance or deemed issuance of Common Stock occurred, (C) whether an agreement, instrument, security or the like constitutes and Option or Convertible Security and in resolving such dispute such investment bank shall apply such findings, determinations and the like to the terms of this Series E Warrant and any other applicable Transaction Documents, (iv) the Holder (and only the Holder), in its sole discretion, shall have the right to submit any dispute described in this Section 13 to any state or federal court sitting in The City of New York, Borough of Manhattan in lieu of utilizing the procedures set forth in this Section 13 and (v) nothing in this Section 13 shall limit the Holder from obtaining any injunctive relief or other equitable remedies (including, without limitation, with respect to any matters described in this Section 13).

14. REMEDIES, CHARACTERIZATION, OTHER OBLIGATIONS, BREACHES AND INJUNCTIVE RELIEF. The remedies provided in this Series E Warrant shall be cumulative and in addition to all other remedies available under this Series E Warrant and the other Transaction

Documents, at law or in equity (including a decree of specific performance and/or other injunctive relief), and nothing herein shall limit the right of the Holder to pursue actual and consequential damages for any failure by the Company to comply with the terms of this Series E Warrant. The Company covenants to the Holder that there shall be no characterization concerning this instrument other than as expressly provided herein. Amounts set forth or provided for herein with respect to payments, exercises and the like (and the computation thereof) shall be the amounts to be received by the Holder and shall not, except as expressly provided herein, be subject to any other obligation of the Company (or the performance thereof). The Company acknowledges that a breach by it of its obligations hereunder will cause irreparable harm to the Holder and that the remedy at law for any such breach may be inadequate. The Company therefore agrees that, in the event of any such breach or threatened breach, the holder of this Series E Warrant shall be entitled, in addition to all other available remedies, to specific performance and/or temporary, preliminary and permanent injunctive or other equitable relief from any court of competent jurisdiction in any such case without the necessity of proving actual damages and without posting a bond or other security. The Company shall provide all information and documentation to the Holder that is requested by the Holder to enable the Holder to confirm the Company's compliance with the terms and conditions of this Series E Warrant (including, without limitation, compliance with Section 2 hereof). The issuance of shares and certificates for shares as contemplated hereby upon the exercise of this Series E Warrant shall be made without charge to the Holder or such shares for any issuance tax or other costs in respect thereof, provided that the Company shall not be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of any certificate in a name other than the Holder or its agent on its behalf.

15. PAYMENT OF COLLECTION, ENFORCEMENT AND OTHER COSTS. If (a) this Series E Warrant is placed in the hands of an attorney for collection or enforcement or is collected or enforced through any legal proceeding or the holder otherwise takes action to collect amounts due under this Series E Warrant or to enforce the provisions of this Series E Warrant or (b) there occurs any bankruptcy, reorganization, receivership of the company or other proceedings affecting company creditors' rights and involving a claim under this Series E Warrant, then the Company shall pay the costs incurred by the Holder for such collection, enforcement or action or in connection with such bankruptcy, reorganization, receivership or other proceeding, including, without limitation, attorneys' fees and disbursements.

16. TRANSFER. This Series E Warrant may be offered for sale, sold, transferred or assigned without the consent of the Company.

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

(a) "1933 Act" means the Securities Act of 1933, as amended, and the rules and regulations thereunder.

(b) "1934 Act" means the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder.

(c) "Affiliate" means, with respect to any Person, any other Person that directly or indirectly controls, is controlled by, or is under common control with, such Person, it being

understood for purposes of this definition that “control” of a Person means the power directly or indirectly either to vote 10% or more of the stock having ordinary voting power for the election of directors of such Person or direct or cause the direction of the management and policies of such Person whether by contract or otherwise.

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

(e) “**Bid Price**” means, for any security as of the particular time of determination, the bid price for such security on the Principal Market as reported by Bloomberg as of such time of determination, or, if the Principal Market is not the principal securities exchange or trading market for such security, the bid price of such security on the principal securities exchange or trading market where such security is listed or traded as reported by Bloomberg as of such time of determination, or if the foregoing does not apply, the bid price of such security in the over-the-counter market on the electronic bulletin board for such security as reported by Bloomberg as of such time of determination, or, if no bid price is reported for such security by Bloomberg as of such time of determination, the average of the bid prices of any market makers for such security as reported in the “pink sheets” by OTC Markets Group Inc. (formerly Pink Sheets LLC) as of such time of determination. If the Bid Price cannot be calculated for a security as of the particular time of determination on any of the foregoing bases, the Bid Price of such security as of such time of determination shall be the fair market value as mutually determined by the Company and the Holder. If the Company and the Holder are unable to agree upon the fair market value of such security, then such dispute shall be resolved in accordance with the procedures in Section 13. All such determinations shall be appropriately adjusted for any stock dividend, stock split, stock combination or other similar transaction during such period.

(f) “**Bloomberg**” means Bloomberg, L.P.

(g) “**Business Day**” means any day other than Saturday, Sunday or other day on which commercial banks in The City of New York are authorized or required by law to remain closed.

(h) “**Closing Sale Price**” means, for any security as of any date, the last closing trade price for such security on the Principal Market, as reported by Bloomberg, or, if the Principal Market begins to operate on an extended hours basis and does not designate the closing trade price, then the last trade price of such security prior to 4:00:00 p.m., New York time, as reported by Bloomberg, or, if the Principal Market is not the principal securities exchange or trading market for such security, the last trade price of such security on the principal securities exchange or trading market where such security is listed or traded as reported by Bloomberg, or if the foregoing does not apply, the last trade price of such security in the over-the-counter market on the electronic

bulletin board for such security as reported by Bloomberg, or, if no last trade price is reported for such security by Bloomberg, the average of the ask prices of any market makers for such security as reported in the “pink sheets” by OTC Markets Group Inc. (formerly Pink Sheets LLC). If the Closing Sale Price cannot be calculated for a security on a particular date on any of the foregoing bases, the Closing Sale Price of such security on such date shall be the fair market value as mutually determined by the Company and the Holder. If the Company and the Holder are unable to agree upon the fair market value of such security, then such dispute shall be resolved in accordance with the procedures in Section 13. All such determinations shall be appropriately adjusted for any stock dividend, stock split, stock combination or other similar transaction during such period.

(i) “**Common Stock**” means (i) the Company’s shares of common stock, \$0.0001 par value per share, and (ii) any capital stock into which such common stock shall have been changed or any share capital resulting from a reclassification of such common stock.

(j) “**Convertible Securities**” means any stock or other security (other than Options) that is at any time and under any circumstances, directly or indirectly, convertible into, exercisable or exchangeable for, or which otherwise entitles the holder thereof to acquire, any shares of Common Stock.

(k) “**Eligible Market**” means the New York Stock Exchange, the NYSE American, The Nasdaq Global Select Market, The Nasdaq Global Market or the Principal Market.

(l) “**Expiration Date**” means the date that is the fifth (5th) anniversary of the Issuance Date or, if such date falls on a day other than a Trading Day or on which trading does not take place on the Principal Market (a “**Holiday**”), the next date that is not a Holiday.

(m) “**Fundamental Transaction**” means (A) that the Company shall, directly or indirectly, including through subsidiaries, Affiliates or otherwise, in one or more related transactions, (i) consolidate or merge with or into (whether or not the Company is the surviving corporation) another Subject Entity, or (ii) sell, assign, transfer, convey or otherwise dispose of all or substantially all of the properties or assets of the Company or any of its “significant subsidiaries” (as defined in Rule 1-02 of Regulation S-X) to one or more Subject Entities, or (iii) make, or allow one or more Subject Entities to make, or allow the Company to be subject to or have its Common Stock be subject to or party to one or more Subject Entities making, a purchase, tender or exchange offer that is accepted by the holders of at least either (x) 50% of the outstanding shares of Common Stock, (y) 50% of the outstanding shares of Common Stock calculated as if any shares of Common Stock held by all Subject Entities making or party to, or Affiliated with any Subject Entities making or party to, such purchase, tender or exchange offer were not outstanding; or (z) such number of shares of Common Stock such that all Subject Entities making or party to, or Affiliated with any Subject Entity making or party to, such purchase, tender or exchange offer, become collectively the beneficial owners (as defined in Rule 13d-3 under the 1934 Act) of at least 50% of the outstanding shares of Common Stock, or (iv) consummate a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with one or more Subject Entities whereby all such Subject Entities, individually or in the aggregate, acquire, either (x) at least 50% of the outstanding shares of Common Stock, (y) at least 50% of the outstanding shares of Common Stock calculated as if any

shares of Common Stock held by all the Subject Entities making or party to, or Affiliated with any Subject Entity making or party to, such stock purchase agreement or other business combination were not outstanding; or (z) such number of shares of Common Stock such that the Subject Entities become collectively the beneficial owners (as defined in Rule 13d-3 under the 1934 Act) of at least 50% of the outstanding shares of Common Stock, or (v) reorganize, recapitalize or reclassify its Common Stock, (B) that the Company shall, directly or indirectly, including through subsidiaries, Affiliates or otherwise, in one or more related transactions, allow any Subject Entity individually or the Subject Entities in the aggregate to be or become the “beneficial owner” (as defined in Rule 13d-3 under the 1934 Act), directly or indirectly, whether through acquisition, purchase, assignment, conveyance, tender, tender offer, exchange, reduction in outstanding shares of Common Stock, merger, consolidation, business combination, reorganization, recapitalization, spin-off, scheme of arrangement, reorganization, recapitalization or reclassification or otherwise in any manner whatsoever, of either (x) at least 50% of the aggregate ordinary voting power represented by issued and outstanding Common Stock, (y) at least 50% of the aggregate ordinary voting power represented by issued and outstanding Common Stock not held by all such Subject Entities as of the date of this Series E Warrant calculated as if any shares of Common Stock held by all such Subject Entities were not outstanding, or (z) a percentage of the aggregate ordinary voting power represented by issued and outstanding shares of Common Stock or other equity securities of the Company sufficient to allow such Subject Entities to effect a statutory short form merger or other transaction requiring other shareholders of the Company to surrender their shares of Common Stock without approval of the shareholders of the Company or (C) directly or indirectly, including through subsidiaries, Affiliates or otherwise, in one or more related transactions, the issuance of or the entering into any other instrument or transaction structured in a manner to circumvent, or that circumvents, the intent of this definition in which case this definition shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this definition to the extent necessary to correct this definition or any portion of this definition which may be defective or inconsistent with the intended treatment of such instrument or transaction.

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

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

(p) “**Parent Entity**” of a Person means an entity that, directly or indirectly, controls the applicable Person and whose common stock or equivalent equity security is quoted or listed on an Eligible Market, or, if there is more than one such Person or Parent Entity, the Person or Parent Entity with the largest public market capitalization as of the date of consummation of the Fundamental Transaction.

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

(r) “**Principal Market**” means the The Nasdaq Capital Market.

(s) “SEC” means the United States Securities and Exchange Commission or the successor thereto.

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

(u) “Successor Entity” means the Person (or, if so elected by the Holder, the Parent Entity) formed by, resulting from or surviving any Fundamental Transaction or the Person (or, if so elected by the Holder, the Parent Entity) with which such Fundamental Transaction shall have been entered into.

(v) “Trading Day” means, as applicable, (x) with respect to all price or trading volume determinations relating to the Common Stock, any day on which the Common Stock is traded on the Principal Market, or, if the Principal Market is not the principal trading market for the Common Stock, then on the principal securities exchange or securities market on which the Common Stock is then traded, provided that “Trading Day” shall not include any day on which the Common Stock is scheduled to trade on such exchange or market for less than 4.5 hours or any day that the Common Stock is suspended from trading during the final hour of trading on such exchange or market (or if such exchange or market does not designate in advance the closing time of trading on such exchange or market, then during the hour ending at 4:00:00 p.m., New York time) unless such day is otherwise designated as a Trading Day in writing by the Holder or (y) with respect to all determinations other than price determinations relating to the Common Stock, any day on which The New York Stock Exchange (or any successor thereto) is open for trading of securities.

(w) “VWAP” means, for any security as of any date, the dollar volume-weighted average price for such security on the Principal Market (or, if the Principal Market is not the principal trading market for such security, then on the principal securities exchange or securities market on which such security is then traded) during the period beginning at 9:30:01 a.m., New York time, and ending at 4:00:00 p.m., New York time, as reported by Bloomberg through its “HP” function (set to weighted average) or, if the foregoing does not apply, the dollar volume-weighted average price of such security in the over-the-counter market on the electronic bulletin board for such security during the period beginning at 9:30:01 a.m., New York time, and ending at 4:00:00 p.m., New York time, as reported by Bloomberg, or, if no dollar volume-weighted average price is reported for such security by Bloomberg for such hours, the average of the highest closing bid price and the lowest closing ask price of any of the market makers for such security as reported in the “pink sheets” by OTC Markets Group Inc. (formerly Pink Sheets LLC). If the VWAP cannot be calculated for such security on such date on any of the foregoing bases, the VWAP of such security on such date shall be the fair market value as mutually determined by the Company and the Holder. If the Company and the Holder are unable to agree upon the fair market value of such security, then such dispute shall be resolved in accordance with the procedures in Section 13. All such determinations shall be appropriately adjusted for any stock dividend, stock split, stock combination, recapitalization or other similar transaction during such period.

[signature page follows]

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

TROVAGENE, INC.

By: _____

Name:

Title:

EXERCISE NOTICE

TO BE EXECUTED BY THE REGISTERED HOLDER TO EXERCISE THIS
SERIES E WARRANT TO PURCHASE COMMON STOCK

TROVAGENE, INC.

The undersigned holder hereby elects to exercise the Series E Warrant to Purchase Common Stock No. _____ (the "**Series E Warrant**") of Trovogene, Inc., a Delaware corporation (the "**Company**") as specified below. Capitalized terms used herein and not otherwise defined shall have the respective meanings set forth in the Series E Warrant.

1. Form of Exercise Price. The Holder intends that payment of the Aggregate Exercise Price shall be made as:
 - o a "Cash Exercise" with respect to _____ Series E Warrant Shares; and/or
 - o a "Cashless Exercise" with respect to _____ Series E Warrant Shares.

In the event that the Holder has elected a Cashless Exercise with respect to some or all of the Series E Warrant Shares to be issued pursuant hereto, the Holder hereby represents and warrants that this Exercise Notice was executed by the Holder at _____ [a.m.][p.m.] on the date set forth below.

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

3. Delivery of Warrant Shares. The Company shall deliver to Holder, or its designee or agent as specified below, _____ shares of Common Stock in accordance with the terms of the Series E Warrant. Delivery shall be made to Holder, or for its benefit, as follows:

- o Check here if requesting delivery as a certificate to the following name and to the following address:

Issue to:

Check here if requesting delivery by Deposit/Withdrawal at Custodian as follows:

DTC Participant:

DTC Number:

Account Number:

Date: _____ ,

Name of Registered Holder

By: _____

Name:

Title:

Tax ID:

Facsimile:

E-mail Address:

ACKNOWLEDGMENT

The Company hereby acknowledges this Exercise Notice and hereby directs _____ to issue the above indicated number of shares of Common Stock in accordance with the Transfer Agent Instructions dated _____, 201____, from the Company and acknowledged and agreed to by _____.

TROVAGENE, INC.

By: _____
Name: _____
Title: _____

[FORM OF SERIES F WARRANT]

THE SECURITIES REPRESENTED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED, OR APPLICABLE STATE SECURITIES LAWS. THE SECURITIES MAY NOT BE OFFERED FOR SALE, SOLD, TRANSFERRED OR ASSIGNED (I) IN THE ABSENCE OF (A) AN EFFECTIVE REGISTRATION STATEMENT FOR THE SECURITIES UNDER THE SECURITIES ACT OF 1933, AS AMENDED, OR (B) AN OPINION OF COUNSEL TO THE HOLDER (IF REQUESTED BY THE COMPANY), IN A FORM REASONABLY ACCEPTABLE TO THE COMPANY, THAT REGISTRATION IS NOT REQUIRED UNDER SAID ACT OR (II) UNLESS SOLD OR ELIGIBLE TO BE SOLD PURSUANT TO RULE 144 OR RULE 144A UNDER SAID ACT. NOTWITHSTANDING THE FOREGOING, THE SECURITIES MAY BE PLEDGED IN CONNECTION WITH A BONA FIDE MARGIN ACCOUNT OR OTHER LOAN OR FINANCING ARRANGEMENT SECURED BY THE SECURITIES.

THE NUMBER OF SHARES OF COMMON STOCK ISSUABLE UPON EXERCISE OF THIS SERIES F WARRANT MAY BE LESS THAN THE AMOUNTS SET FORTH ON THE FACE HEREOF PURSUANT TO SECTION 1(a) OF THIS SERIES F WARRANT.

TROVAGENE, INC.

SERIES F WARRANT TO PURCHASE COMMON STOCK

Series F Warrant No.: 1

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

Initial Exercise Date: [], 2019 (“**Initial Exercise Date**”)

Trovagene, Inc., a Delaware corporation (the “**Company**”), hereby certifies that, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Lincoln Park Capital Fund, LLC, the registered holder hereof or its permitted assigns (the “**Holder**”), is entitled, subject to the terms set forth below, to purchase from the Company, at the Exercise Price (as defined below) then in effect, upon exercise of this Series F Warrant to Purchase Common Stock (including any Series F Warrants to Purchase Common Stock issued in exchange, transfer or replacement hereof, the “**Series F Warrant**”), at any time or times on or after the Initial Exercise Date, but not after 11:59 p.m., New York time, on the Expiration Date (as defined below), 727,802 (subject to adjustment as provided herein) fully paid and non-assessable shares of Common Stock (as defined below) (the “**Series F Warrant Shares**”). Except as otherwise defined herein, capitalized terms in this Series F Warrant shall have the meanings set forth in Section 17. This Series F Warrant is the Series F Warrant issued pursuant to (i) Section 1 of that certain Securities Purchase Agreement, dated as of August 20, 2019 (the “**Subscription Date**”), by and between the Company and Lincoln Park Capital Fund, LLC, as amended from time to time (the “**Securities Purchase Agreement**”).

1. EXERCISE OF SERIES F WARRANT.

(a) Mechanics of Exercise. Subject to the terms and conditions hereof (including, without limitation, the limitations set forth in Section 1(f)), this Series F Warrant may be exercised by the Holder on any day on or after the Initial Exercise Date, in whole or in part, by delivery (whether via facsimile or otherwise) of a written notice, in the form attached hereto as Exhibit A (the “**Exercise Notice**”), of the Holder’s election to exercise this Series F Warrant. Within one (1) Trading Day following an exercise of this Series F Warrant as aforesaid, the Holder shall deliver payment to the Company of an amount equal to the Exercise Price in effect on the date of such exercise multiplied by the number of Series F Warrant Shares as to which this Series F Warrant was so exercised (the “**Aggregate Exercise Price**”) in cash or via wire transfer of immediately available funds if the Holder did not notify the Company in such Exercise Notice that such exercise was made pursuant to a Cashless Exercise (as defined in Section 1(d)). The Holder shall not be required to deliver the original of this Series F Warrant in order to effect an exercise hereunder. Execution and delivery of an Exercise Notice with respect to less than all of the Series F Warrant Shares shall have the same effect as cancellation of the original of this Series F Warrant and issuance of a new Series F Warrant evidencing the right to purchase the remaining number of Series F Warrant Shares. Execution and delivery of an Exercise Notice for all of the then-remaining Series F Warrant Shares shall have the same effect as cancellation of the original of this Series F Warrant after delivery of the Series F Warrant Shares in accordance with the terms hereof. On or before the first (1st) Trading Day following the date on which the Company has received an Exercise Notice, the Company shall transmit by facsimile or electronic mail an acknowledgment of confirmation of receipt of such Exercise Notice, in the form attached hereto as Exhibit B, to the Holder and the Company’s transfer agent (the “**Transfer Agent**”), which confirmation shall constitute an instruction to the Transfer Agent to process such Exercise Notice in accordance with the terms herein. On or before the second (2nd) Trading Day following the date on which the Company has received such Exercise Notice (or such earlier date as required pursuant to the 1934 Act or other applicable law, rule or regulation for the settlement of a trade of such Series F Warrant Shares initiated on the applicable Exercise Date), the Company shall (i) provided that the Transfer Agent is participating in The Depository Trust Company (“**DTC**”) Fast Automated Securities Transfer Program, upon the request of the Holder, credit such aggregate number of shares of Common Stock to which the Holder is entitled pursuant to such exercise to the Holder’s or its designee’s balance account with DTC through its Deposit/Withdrawal at Custodian system, or (ii) if the Transfer Agent is not participating in the DTC Fast Automated Securities Transfer Program, upon the request of the Holder, issue and deliver (via reputable overnight courier) to the address as specified in the Exercise Notice, a certificate, registered in the name of the Holder or its designee, for the number of shares of Common Stock to which the Holder shall be entitled pursuant to such exercise. Upon delivery of an Exercise Notice, the Holder shall be deemed for all corporate purposes to have become the holder of record of the Series F Warrant Shares with respect to which this Series F Warrant has been exercised, irrespective of the date such Series F Warrant Shares are credited to the Holder’s DTC account or the date of delivery of the certificates evidencing such Series F Warrant Shares (as the case may be). If this Series F Warrant is submitted in connection with any exercise pursuant to this Section 1(a) and the number of Series F Warrant Shares represented by this Series F Warrant submitted for exercise is greater than the number of Series F Warrant Shares being acquired upon an exercise and upon surrender of this Series F Warrant to the Company by the Holder, then, at the request of the Holder, the Company shall as soon as practicable and in no event later than three (3) Business Days after any exercise and at its own

expense, issue and deliver to the Holder (or its designee) a new Series F Warrant (in accordance with Section 7(d)) representing the right to purchase the number of Series F Warrant Shares purchasable immediately prior to such exercise under this Series F Warrant, less the number of Series F Warrant Shares with respect to which this Series F Warrant is exercised. No fractional shares of Common Stock are to be issued upon the exercise of this Series F Warrant, but rather the number of shares of Common Stock to be issued shall be rounded up to the nearest whole number. The Company shall pay any and all transfer, stamp, issuance and similar taxes, costs and expenses (including, without limitation, fees and expenses of the Transfer Agent) that may be payable with respect to the issuance and delivery of Series F Warrant Shares upon exercise of this Series F Warrant. Notwithstanding the foregoing, except in the case where an exercise of this Series F Warrant is validly made pursuant to a Cashless Exercise, the Company's failure to deliver Series F Warrant Shares to the Holder on or prior to the later of (A) two (2) Trading Days after receipt of the applicable Exercise Notice (or such earlier date as required pursuant to the 1934 Act or other applicable law, rule or regulation for the settlement of a trade of such Series F Warrant Shares initiated on the applicable Exercise Date) and (B) one (1) Trading Day after the Company's receipt of the Aggregate Exercise Price (or valid notice of a Cashless Exercise) (such later date, the "**Share Delivery Deadline**") shall not be deemed to be a breach of this Series F Warrant. From the Issuance Date through and including the Expiration Date, the Company shall maintain a transfer agent that participates in the DTC's Fast Automated Securities Transfer Program.

(b) Exercise Price. For purposes of this Series F Warrant, "**Exercise Price**" means \$1.936, subject to adjustment as provided herein.

(c) Company's Failure to Timely Deliver Securities. If the Company shall fail, for any reason or for no reason, to issue to the Holder within three (3) Trading Days after receipt of the applicable Exercise Notice, a certificate for the number of shares of Common Stock to which the Holder is entitled and register such shares of Common Stock on the Company's share register or to credit the Holder's balance account with DTC for such number of shares of Common Stock to which the Holder is entitled upon the Holder's exercise of this Series F Warrant (as the case may be) (a "**Delivery Failure**"), then, in addition to all other remedies available to the Holder, (X) the Company shall pay in cash to the Holder on each day after the Share Delivery Deadline and during such Delivery Failure an amount equal to 2% of the product of (A) the sum of the number of shares of Common Stock not issued to the Holder on or prior to the Share Delivery Deadline and to which the Holder is entitled, multiplied by (B) any trading price of the Common Stock selected by the Holder in writing as in effect at any time during the period beginning on the applicable Exercise Date and ending on the applicable Share Delivery Deadline, and (Y) the Holder, upon written notice to the Company, may void its Exercise Notice with respect to, and retain or have returned, as the case may be, any portion of this Series F Warrant that has not been exercised pursuant to such Exercise Notice; provided that the voiding of an Exercise Notice shall not affect the Company's obligations to make any payments which have accrued prior to the date of such notice pursuant to this Section 1(c) or otherwise. In addition to the foregoing, if on or prior to the Share Delivery Deadline either (I) the Transfer Agent is not participating in the DTC Fast Automated Securities Transfer Program, the Company shall fail to issue and deliver to the Holder (or its designee) a certificate and register such shares of Common Stock on the Company's share register or, if the Transfer Agent is participating in the DTC Fast Automated Securities Transfer Program, the Transfer Agent shall fail to credit the balance account of the Holder or the Holder's designee with DTC for the number of shares of Common Stock to which the Holder is entitled upon the

Holder's exercise hereunder or pursuant to the Company's obligation pursuant to clause (ii) below or (II) a Notice Failure occurs, and if on or after such Share Delivery Deadline the Holder purchases (in an open market transaction or otherwise) shares of Common Stock to deliver in satisfaction of a sale by the Holder of all or any portion of the number of shares of Common Stock issuable upon such exercise that the Holder is entitled to receive from the Company (a "**Buy-In**"), then, in addition to all other remedies available to the Holder, the Company shall, within three (3) Business Days after the Holder's request and in the Holder's discretion, either (i) pay cash to the Holder in an amount equal to the Holder's total purchase price (including brokerage commissions and other out-of-pocket expenses, if any) for the shares of Common Stock so purchased (including, without limitation, by any other Person in respect, or on behalf, of the Holder) (the "**Buy-In Price**"), at which point the Company's obligation to so issue and deliver such certificate (and to issue such shares of Common Stock) or credit the balance account of such Holder or such Holder's designee, as applicable, with DTC for the number of Series F Warrant Shares to which the Holder is entitled upon the Holder's exercise hereunder (as the case may be) (and to issue such Series F Warrant Shares) shall terminate, or (ii) promptly honor its obligation to so issue and deliver to the Holder a certificate or certificates representing such Series F Warrant Shares or credit the balance account of such Holder or such Holder's designee, as applicable, with DTC for the number of Series F Warrant Shares to which the Holder is entitled upon the Holder's exercise hereunder (as the case may be) and pay cash to the Holder in an amount equal to the excess (if any) of the Buy-In Price over the product of (A) such number of Series F Warrant Shares multiplied by (B) the lowest Closing Sale Price of the Common Stock on any Trading Day during the period commencing on the date of the applicable Exercise Notice and ending on the date of such issuance and payment under this clause (ii) (the "**Buy-In Payment Amount**"). Nothing shall limit the Holder's right to pursue any other remedies available to it hereunder, at law or in equity, including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Company's failure to timely deliver certificates representing shares of Common Stock (or to electronically deliver such shares of Common Stock) upon the exercise of this Series F Warrant as required pursuant to the terms hereof.

(d) Cashless Exercise. Notwithstanding anything contained herein to the contrary (other than Section 1(f) below), if at the time of exercise hereof a registration statement is not effective (or the prospectus contained therein is not available for use) for the resale by the Holder of all of the Series F Warrant Shares, then the Holder may, in its sole discretion, exercise this Series F Warrant in whole or in part by means of a "cashless exercise" (a "**Cashless Exercise**") in which the Holder shall be entitled to receive a number of Series F Warrant Shares equal to the quotient obtained by dividing [(A-B) (X)] by (A), where:

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

of Exercise if such Notice of Exercise is executed during “regular trading hours” on a Trading Day and is delivered within two (2) hours thereafter (including until two (2) hours after the close of “regular trading hours” on a Trading Day) pursuant to Section 1(a) hereof or (iii) the VWAP on the date of the applicable Notice of Exercise if the date of such Notice of Exercise is a Trading Day and such Notice of Exercise is both executed and delivered pursuant to Section 1(a) hereof after the close of “regular trading hours” on such Trading Day.

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

C = the number of Series F Warrant Shares that would be issuable upon exercise of this Series F Warrant in accordance with the terms of this Series F Warrant if such exercise were by means of a cash exercise rather than a Cashless Exercise.

If the Series F Warrant Shares are issued in a Cashless Exercise, the parties acknowledge and agree that in accordance with Section 3(a) (9) of the 1933 Act, the Series F Warrant Shares take on the characteristics of the Series F Warrants being exercised. For purposes of Rule 144(d) promulgated under the 1933 Act, as in effect on the Subscription Date, it is intended that the Series F Warrant Shares issued in a Cashless Exercise shall be deemed to have been acquired by the Holder, and the holding period for the Series F Warrant Shares shall be deemed to have commenced, on the date this Series F Warrant was originally issued pursuant to the Securities Purchase Agreement. The Company agrees not to take any position contrary to this Section 1(d).

(e) Disputes. In the case of a dispute as to the determination of the Exercise Price or the arithmetic calculation of the number of Series F Warrant Shares to be issued pursuant to the terms hereof, the Company shall promptly issue to the Holder the number of Series F Warrant Shares that are not disputed and resolve such dispute in accordance with Section 13.

(f) Limitations on Exercises. The Company shall not effect the exercise of any portion of this Series F Warrant, and the Holder shall not have the right to exercise any portion of this Series F Warrant, pursuant to the terms and conditions of this Series F Warrant and any such exercise shall be null and void and treated as if never made, to the extent that after giving effect to such exercise, the Holder together with the other Attribution Parties collectively would beneficially own in excess of 4.99% (the “**Maximum Percentage**”) of the shares of Common Stock outstanding immediately after giving effect to such exercise. For purposes of the foregoing sentence, the aggregate number of shares of Common Stock beneficially owned by the Holder and the other Attribution Parties shall include the number of shares of Common Stock held by the Holder and all other Attribution Parties plus the number of shares of Common Stock issuable upon exercise of this Series F Warrant with respect to which the determination of such sentence is being made, but shall exclude shares of Common Stock which would be issuable upon (A) exercise of the remaining, unexercised portion of this Series F Warrant beneficially owned by the Holder or any of the other Attribution Parties and (B) exercise or conversion of the unexercised or unconverted portion of any other securities of the Company (including, without limitation, any convertible notes or convertible preferred stock or Series F Warrants) beneficially owned by the Holder or any other Attribution Party subject to a limitation on conversion or exercise analogous to the limitation contained in this Section 1(f). For purposes of this Section 1(f), beneficial

ownership shall be calculated in accordance with Section 13(d) of the 1934 Act. For purposes of determining the number of outstanding shares of Common Stock the Holder may acquire upon the exercise of this Series F Warrant without exceeding the Maximum Percentage, the Holder may rely on the number of outstanding shares of Common Stock as reflected in (x) the Company's most recent Annual Report on Form 10-K, Quarterly Report on Form 10-Q, Current Report on Form 8-K or other public filing with the SEC, as the case may be, (y) a more recent public announcement by the Company or (z) any other written notice by the Company or the Transfer Agent, if any, setting forth the number of shares of Common Stock outstanding (the "**Reported Outstanding Share Number**"). If the Company receives an Exercise Notice from the Holder at a time when the actual number of outstanding shares of Common Stock is less than the Reported Outstanding Share Number, the Company shall (i) notify the Holder in writing of the number of shares of Common Stock then outstanding and, to the extent that such Exercise Notice would otherwise cause the Holder's beneficial ownership, as determined pursuant to this Section 1(f), to exceed the Maximum Percentage, the Holder must notify the Company of a reduced number of Series F Warrant Shares to be acquired pursuant to such Exercise Notice (the number of shares by which such purchase is reduced, the "**Reduction Shares**") and (ii) as soon as reasonably practicable, the Company shall return to the Holder any exercise price paid by the Holder for the Reduction Shares. For any reason at any time, upon the written or oral request of the Holder, the Company shall within one (1) Business Day confirm orally and in writing or by electronic mail to the Holder the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of the Company, including this Series F Warrant, by the Holder and any other Attribution Party since the date as of which the Reported Outstanding Share Number was reported. In the event that the issuance of shares of Common Stock to the Holder upon exercise of this Series F Warrant results in the Holder and the other Attribution Parties being deemed to beneficially own, in the aggregate, more than the Maximum Percentage of the number of outstanding shares of Common Stock (as determined under Section 13(d) of the 1934 Act), the number of shares so issued by which the Holder's and the other Attribution Parties' aggregate beneficial ownership exceeds the Maximum Percentage (the "**Excess Shares**") shall be deemed null and void and shall be cancelled ab initio, and the Holder shall not have the power to vote or to transfer the Excess Shares. As soon as reasonably practicable after the issuance of the Excess Shares has been deemed null and void, the Company shall return to the Holder the exercise price paid by the Holder for the Excess Shares. Upon delivery of a written notice to the Company, the Holder may from time to time increase (with such increase not effective until the sixty-first (61st) day after delivery of such notice) or decrease the Maximum Percentage to any other percentage not in excess of 9.99% as specified in such notice; provided that (i) any such increase in the Maximum Percentage will not be effective until the sixty-first (61st) day after such notice is delivered to the Company and (ii) any such increase or decrease will apply only to the Holder and the other Attribution Parties and not to any other holder of Series F Warrants that is not an Attribution Party of the Holder. For purposes of clarity, the shares of Common Stock issuable pursuant to the terms of this Series F Warrant in excess of the Maximum Percentage shall not be deemed to be beneficially owned by the Holder for any purpose including for purposes of Section 13(d) or Rule 16a-1(a)(1) of the 1934 Act. No prior inability to exercise this Series F Warrant pursuant to this paragraph shall have any effect on the applicability of the provisions of this paragraph with respect to any subsequent determination of exercisability. The provisions of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 1(f) to

the extent necessary to correct this paragraph or any portion of this paragraph which may be defective or inconsistent with the intended beneficial ownership limitation contained in this Section 1(f) or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitation contained in this paragraph may not be waived and shall apply to a successor holder of this Series F Warrant.

(g) Reservation of Shares.

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

(ii) Insufficient Authorized Shares. If, notwithstanding Section 1(g)(i) above, and not in limitation thereof, at any time while any of the Series F Warrants remain outstanding, the Company does not have a sufficient number of authorized and unreserved shares of Common Stock to satisfy its obligation to reserve the Required Reserve Amount (an "**Authorized Share Failure**"), then the Company shall immediately take all action necessary to increase the Company's authorized shares of Common Stock to an amount sufficient to allow the Company to reserve the Required Reserve Amount for all the Series F Warrants then outstanding. Without limiting the generality of the foregoing sentence, as soon as practicable after the date of the occurrence of an Authorized Share Failure, but in no event later than sixty (60) days after the occurrence of such Authorized Share Failure, the Company shall hold a meeting of its stockholders for the approval of an increase in the number of authorized shares of Common Stock. In connection with such meeting, the Company shall provide each stockholder with a proxy statement and shall use its best efforts to solicit its stockholders' approval of such increase in authorized shares of Common Stock and to cause its board of directors to recommend to the stockholders that they approve such proposal. In the event that the Company is prohibited from issuing shares of Common Stock upon an exercise of this Series F Warrant due to the failure by

the Company to have sufficient shares of Common Stock available out of the authorized but unissued shares of Common Stock (such unavailable number of shares of Common Stock, the “**Authorization Failure Shares**”), in lieu of delivering such Authorization Failure Shares to the Holder, the Company shall pay cash in exchange for the cancellation of such portion of this Series F Warrant exercisable into such Authorization Failure Shares at a price equal to the sum of (i) the product of (x) such number of Authorization Failure Shares and (y) the greatest Closing Sale Price of the Common Stock on any Trading Day during the period commencing on the date the Holder delivers the applicable Exercise Notice with respect to such Authorization Failure Shares to the Company and ending on the date of such issuance and payment under this Section 1(f); and (ii) to the extent the Holder purchases (in an open market transaction or otherwise) shares of Common Stock to deliver in satisfaction of a sale by the Holder of Authorization Failure Shares, any Buy-In Payment Amount, brokerage commissions and other out-of-pocket expenses, if any, of the Holder incurred in connection therewith. Nothing contained in this Section 1(g)(ii) shall limit any obligations of the Company under any provision of the Securities Purchase Agreement.

2. ADJUSTMENT OF EXERCISE PRICE AND NUMBER OF SERIES F WARRANT SHARES.

The Exercise Price and number of Series F Warrant Shares issuable upon exercise of this Series F Warrant are subject to adjustment from time to time as set forth in this Section 2.

(a) Stock Dividends and Splits. Without limiting any provision of Section 2(b), Section 3 or Section 4, if the Company, at any time on or after the date of the Securities Purchase Agreement, (i) pays a stock dividend on one or more classes of its then outstanding shares of Common Stock or otherwise makes a distribution on any class of capital stock that is payable in shares of Common Stock, (ii) subdivides (by any stock split, stock dividend, recapitalization or otherwise) one or more classes of its then outstanding shares of Common Stock into a larger number of shares or (iii) combines (by combination, reverse stock split or otherwise) one or more classes of its then outstanding shares of Common Stock into a smaller number of shares, then in each such case (a) the Exercise Price shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock outstanding immediately before such event and of which the denominator shall be the number of shares of Common Stock outstanding immediately after such event and (b) the number of Series F Warrant Shares that may be purchased upon exercise of this Series F Warrant shall be increased or decreased proportionately, so that after such adjustment the aggregate Exercise Price payable hereunder for the adjusted number of Series F Warrant Shares shall be the same as the aggregate Exercise Price in effect immediately prior to such adjustment (without regard to any limitations on exercise contained herein). Any adjustment made pursuant to clause (i) of this paragraph shall become effective immediately after the record date for the determination of shareholders entitled to receive such dividend or distribution, and any adjustment pursuant to clause (ii) or (iii) of this paragraph shall become effective immediately after the effective date of such subdivision or combination. If any event requiring an adjustment under this paragraph occurs during the period that an Exercise Price is calculated hereunder, then the calculation of such Exercise Price shall be adjusted appropriately to reflect such event.

(b) Other Events. In the event that the Company (or any Subsidiary (as defined in the Securities Purchase Agreement)) shall take any action to which the provisions hereof are not

strictly applicable, or, if applicable, would not operate to protect the Holder from dilution or if any event occurs of the type contemplated by the provisions of this Section 2 but not expressly provided for by such provisions (including, without limitation, the granting of stock appreciation rights, phantom stock rights or other rights with equity features), then the Company's board of directors shall in good faith determine and implement an appropriate adjustment in the Exercise Price and the number of Series F Warrant Shares (if applicable) so as to protect the rights of the Holder, provided that no such adjustment pursuant to this Section 2(b) will increase the Exercise Price or decrease the number of Series F Warrant Shares as otherwise determined pursuant to this Section 2, provided further that if the Holder does not accept such adjustments as appropriately protecting its interests hereunder against such dilution, then the Company's board of directors and the Holder shall agree, in good faith, upon an independent investment bank of nationally recognized standing to make such appropriate adjustments, whose determination shall be final and binding absent manifest error and whose fees and expenses shall be borne by the Company.

(c) Calculations. All calculations under this Section 2 shall be made by rounding to the nearest cent or the nearest 1/100th of a share, as applicable. The number of shares of Common Stock outstanding at any given time shall not include shares owned or held by or for the account of the Company, and the disposition of any such shares shall be considered an issuance or sale of Common Stock.

(d) Intentionally omitted.

(e) Par Value. Notwithstanding anything to the contrary in this Series F Warrant, in no event shall the Exercise Price be reduced below the par value of the Company's Common Stock.

3. RIGHTS UPON DISTRIBUTION OF ASSETS. In addition to any adjustments pursuant to Section 2 above, if the Company shall declare or make any dividend or other distribution of its assets (or rights to acquire its assets) to holders of shares of Common Stock, by way of return of capital or otherwise (including, without limitation, any distribution of cash, stock or other securities, property, options, evidence of indebtedness or any other assets by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) (a "**Distribution**"), at any time after the issuance of this Series F Warrant, then, in each such case, the Holder shall be entitled to participate in such Distribution to the same extent that the Holder would have participated therein if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Series F Warrant (without regard to any limitations or restrictions on exercise of this Series F Warrant, including without limitation, the Maximum Percentage) immediately before the date on which a record is taken for such Distribution, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the participation in such Distribution (provided, however, that to the extent that the Holder's right to participate in any such Distribution would result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, then the Holder shall not be entitled to participate in such Distribution to the extent of the Maximum Percentage (and shall not be entitled to beneficial ownership of such shares of Common Stock as a result of such Distribution (and beneficial ownership) to the extent of any such excess) and the portion of such Distribution shall be held in abeyance for the benefit of the Holder until such time or times, if ever, as its right thereto would not result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, at which time or times the Holder shall be granted such Distribution (and

any Distributions declared or made on such initial Distribution or on any subsequent Distribution held similarly in abeyance) to the same extent as if there had been no such limitation).

4. PURCHASE RIGHTS; FUNDAMENTAL TRANSACTIONS.

(a) Purchase Rights. In addition to any adjustments pursuant to Section 2 above, if at any time the Company grants, issues or sells any Options, Convertible Securities or rights to purchase stock, Series F Warrants, securities or other property pro rata to the record holders of any class of Common Stock (the "**Purchase Rights**"), then the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Series F Warrant (without regard to any limitations or restrictions on exercise of this Series F Warrant, including without limitation, the Maximum Percentage) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the grant, issuance or sale of such Purchase Rights (provided, however, that to the extent that the Holder's right to participate in any such Purchase Right would result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, then the Holder shall not be entitled to participate in such Purchase Right to the extent of the Maximum Percentage (and shall not be entitled to beneficial ownership of such shares of Common Stock as a result of such Purchase Right (and beneficial ownership) to the extent of any such excess) and such Purchase Right to such extent shall be held in abeyance for the benefit of the Holder until such time or times, if ever, as its right thereto would not result in the Holder and the other Attribution Parties exceeding the Maximum Percentage, at which time or times the Holder shall be granted such right (and any Purchase Right granted, issued or sold on such initial Purchase Right or on any subsequent Purchase Right held similarly in abeyance) to the same extent as if there had been no such limitation).

(b) Fundamental Transactions. The Company shall not enter into or be party to a Fundamental Transaction unless (i) the Successor Entity assumes in writing all of the obligations of the Company under this Series F Warrant and the other Transaction Documents (as defined in the Securities Purchase Agreement) in accordance with the provisions of this Section 4(b) pursuant to written agreements in form and substance satisfactory to the Holder and approved by the Holder prior to such Fundamental Transaction, including agreements to deliver to the Holder in exchange for this Series F Warrant a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Series F Warrant, including, without limitation, which is exercisable for a corresponding number of shares of capital stock equivalent to the shares of Common Stock acquirable and receivable upon exercise of this Series F Warrant (without regard to any limitations on the exercise of this Series F Warrant) prior to such Fundamental Transaction, and with an exercise price which applies the exercise price hereunder to such shares of capital stock (but taking into account the relative value of the shares of Common Stock pursuant to such Fundamental Transaction and the value of such shares of capital stock, such adjustments to the number of shares of capital stock and such exercise price being for the purpose of protecting the economic value of this Series F Warrant immediately prior to the consummation of such Fundamental Transaction) and (ii) the Successor Entity (including its Parent Entity) is a publicly traded corporation whose common stock is quoted on or listed for trading on an Eligible Market. Upon the consummation of each Fundamental Transaction, the Successor Entity shall succeed to,

and be substituted for (so that from and after the date of the applicable Fundamental Transaction, the provisions of this Series F Warrant and the other Transaction Documents referring to the “Company” shall refer instead to the Successor Entity), and may exercise every right and power of the Company and shall assume all of the obligations of the Company under this Series F Warrant and the other Transaction Documents with the same effect as if such Successor Entity had been named as the Company herein. Upon consummation of each Fundamental Transaction, the Successor Entity shall deliver to the Holder confirmation that there shall be issued upon exercise of this Series F Warrant at any time after the consummation of the applicable Fundamental Transaction, in lieu of the shares of Common Stock (or other securities, cash, assets or other property (except such items still issuable under Sections 3 and 4(a) above, which shall continue to be receivable thereafter)) issuable upon the exercise of this Series F Warrant prior to the applicable Fundamental Transaction, such shares of publicly traded common stock (or its equivalent) of the Successor Entity (including its Parent Entity) which the Holder would have been entitled to receive upon the happening of the applicable Fundamental Transaction had this Series F Warrant been exercised immediately prior to the applicable Fundamental Transaction (without regard to any limitations on the exercise of this Series F Warrant), as adjusted in accordance with the provisions of this Series F Warrant. Notwithstanding the foregoing, and without limiting Section 1(f) hereof, the Holder may elect, at its sole option, by delivery of written notice to the Company to waive this Section 4(b) to permit the Fundamental Transaction without the assumption of this Series F Warrant. In addition to and not in substitution for any other rights hereunder, prior to the consummation of each Fundamental Transaction pursuant to which holders of shares of Common Stock are entitled to receive securities or other assets with respect to or in exchange for shares of Common Stock (a “**Corporate Event**”), the Company shall make appropriate provision to insure that the Holder will thereafter have the right to receive upon an exercise of this Series F Warrant at any time after the consummation of the applicable Fundamental Transaction but prior to the Expiration Date, in lieu of the shares of the Common Stock (or other securities, cash, assets or other property (except such items still issuable under Sections 3 and 4(a) above, which shall continue to be receivable thereafter)) issuable upon the exercise of the Series F Warrant prior to such Fundamental Transaction, such shares of stock, securities, cash, assets or any other property whatsoever (including warrants or other purchase or subscription rights) which the Holder would have been entitled to receive upon the happening of the applicable Fundamental Transaction had this Series F Warrant been exercised immediately prior to the applicable Fundamental Transaction (without regard to any limitations on the exercise of this Series F Warrant). Provision made pursuant to the preceding sentence shall be in a form and substance reasonably satisfactory to the Holder.

(c) Application. The provisions of this Section 4 shall apply similarly and equally to successive Fundamental Transactions and Corporate Events and shall be applied as if this Series F Warrant (and any such subsequent warrants) were fully exercisable and without regard to any limitations on the exercise of this Series F Warrant (provided that the Holder shall continue to be entitled to the benefit of the Maximum Percentage, applied however with respect to shares of capital stock registered under the 1934 Act and thereafter receivable upon exercise of this Series F Warrant (or any such other warrant)).

5. NONCIRCUMVENTION.

The Company hereby covenants and agrees that the Company will not, by amendment of its Certificate of Incorporation (as defined in the Securities Purchase Agreement), Bylaws (as defined in the Securities Purchase Agreement) or through any reorganization, transfer of assets, consolidation, merger, scheme of arrangement, dissolution, issuance or sale of securities, or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Series F Warrant, and will at all times in good faith carry out all the provisions of this Series F Warrant and take all action as may be required to protect the rights of the Holder. Without limiting the generality of the foregoing, the Company (a) shall not increase the par value of any shares of Common Stock receivable upon the exercise of this Series F Warrant above the Exercise Price then in effect, and (b) shall take all such actions as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and non-assessable shares of Common Stock upon the exercise of this Series F Warrant.

6. WARRANT HOLDER NOT DEEMED A STOCKHOLDER.

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

7. REISSUANCE OF WARRANTS.

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

(b) Lost, Stolen or Mutilated Warrant. Upon receipt by the Company of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Series F Warrant (as to which a written certification and the indemnification contemplated below shall suffice as such evidence), and, in the case of loss, theft or destruction, of any indemnification undertaking by the Holder to the Company in customary and reasonable form and, in the case of

mutilation, upon surrender and cancellation of this Series F Warrant, the Company shall execute and deliver to the Holder a new Series F Warrant (in accordance with Section 7(d)) representing the right to purchase the Series F Warrant Shares then underlying this Series F Warrant.

(c) Exchangeable for Multiple Warrants. This Series F Warrant is exchangeable, upon the surrender hereof by the Holder at the principal office of the Company, for a new Series F Warrant or Series F Warrants (in accordance with Section 7(d)) representing in the aggregate the right to purchase the number of Series F Warrant Shares then underlying this Series F Warrant, and each such new Series F Warrant will represent the right to purchase such portion of such Series F Warrant Shares as is designated by the Holder at the time of such surrender; provided, however, no warrants for fractional shares of Common Stock shall be given.

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

8. NOTICES.

Whenever notice is required to be given under this Series F Warrant, unless otherwise provided herein, such notice shall be given in accordance with Section 9(f) of the Securities Purchase Agreement. The Company shall provide the Holder with prompt written notice of all actions taken pursuant to this Series F Warrant (other than the issuance of shares of Common Stock upon exercise in accordance with the terms hereof), including in reasonable detail a description of such action and the reason therefor. Without limiting the generality of the foregoing, the Company will give written notice to the Holder (i) immediately upon each adjustment of the Exercise Price and the number of Series F Warrant Shares, setting forth in reasonable detail, and certifying, the calculation of such adjustment(s), (ii) at least ten Trading Days prior to the date on which the Company closes its books or takes a record (A) with respect to any dividend or distribution upon the shares of Common Stock, (B) with respect to any grants, issuances or sales of any Options, Convertible Securities or rights to purchase stock, warrants, securities or other property to holders of shares of Common Stock or (C) for determining rights to vote with respect to any Fundamental Transaction, dissolution or liquidation, provided in each case that such information shall be made known to the public prior to or in conjunction with such notice being provided to the Holder, and (iii) at least ten (10) Trading Days prior to the consummation of any Fundamental Transaction. To the extent that any notice provided hereunder constitutes, or contains, material, non-public information regarding the Company or any of its Subsidiaries, the Company shall simultaneously file such notice with the SEC (as defined in the Securities Purchase Agreement) pursuant to a Current Report on Form 8-K. If the Company or any of its Subsidiaries provides material non-public information to the Holder that is not simultaneously filed in a Current Report on Form 8-K

and the Holder has not agreed to receive such material non-public information, the Company hereby covenants and agrees that the Holder shall not have any duty of confidentiality to the Company, any of its Subsidiaries or any of their respective officers, directors, employees, Affiliates or agents with respect to, or a duty to any of the foregoing not to trade on the basis of, such material non-public information. It is expressly understood and agreed that the time of execution specified by the Holder in each Exercise Notice shall be definitive and may not be disputed or challenged by the Company.

9. AMENDMENT AND WAIVER.

Except as otherwise provided herein, the provisions of this Series F Warrant (other than Section 1(f)) may be amended and the Company may take any action herein prohibited, or omit to perform any act herein required to be performed by it, only if the Company has obtained the written consent of the Holder. No waiver shall be effective unless it is in writing and signed by an authorized representative of the waiving party.

10. SEVERABILITY.

If any provision of this Series F Warrant is prohibited by law or otherwise determined to be invalid or unenforceable by a court of competent jurisdiction, the provision that would otherwise be prohibited, invalid or unenforceable shall be deemed amended to apply to the broadest extent that it would be valid and enforceable, and the invalidity or unenforceability of such provision shall not affect the validity of the remaining provisions of this Series F Warrant so long as this Series F Warrant as so modified continues to express, without material change, the original intentions of the parties as to the subject matter hereof and the prohibited nature, invalidity or unenforceability of the provision(s) in question does not substantially impair the respective expectations or reciprocal obligations of the parties or the practical realization of the benefits that would otherwise be conferred upon the parties. The parties will endeavor in good faith negotiations to replace the prohibited, invalid or unenforceable provision(s) with a valid provision(s), the effect of which comes as close as possible to that of the prohibited, invalid or unenforceable provision(s).

11. GOVERNING LAW.

This Series F Warrant shall be governed by and construed and enforced in accordance with, and all questions concerning the construction, validity, interpretation and performance of this Series F Warrant shall be governed by, the internal laws of the State of New York, without giving effect to any choice of law or conflict of law provision or rule (whether of the State of New York or any other jurisdictions) that would cause the application of the laws of any jurisdictions other than the State of New York. The Company hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof to the Company at the address set forth in Section 9(f) of the Securities Purchase Agreement and agrees that such service shall constitute good and sufficient service of process and notice thereof. The Company hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts sitting in The City of New York, Borough of Manhattan, for the adjudication of any dispute hereunder or in connection herewith or with any transaction contemplated hereby or discussed herein, and hereby irrevocably waives, and agrees not to assert in any suit, action or proceeding,

any claim that it is not personally subject to the jurisdiction of any such court, that such suit, action or proceeding is brought in an inconvenient forum or that the venue of such suit, action or proceeding is improper. Nothing contained herein shall be deemed to limit in any way any right to serve process in any manner permitted by law. Nothing contained herein shall be deemed or operate to preclude the Holder from bringing suit or taking other legal action against the Company in any other jurisdiction to collect on the Company's obligations to the Holder, to realize on any collateral or any other security for such obligations, or to enforce a judgment or other court ruling in favor of the Holder. **THE COMPANY HEREBY IRREVOCABLY WAIVES ANY RIGHT IT MAY HAVE TO, AND AGREES NOT TO REQUEST, A JURY TRIAL FOR THE ADJUDICATION OF ANY DISPUTE HEREUNDER OR IN CONNECTION WITH OR ARISING OUT OF THIS SERIES F WARRANT OR ANY TRANSACTION CONTEMPLATED HEREBY.**

12. CONSTRUCTION; HEADINGS.

This Series F Warrant shall be deemed to be jointly drafted by the Company and the Holder and shall not be construed against any Person as the drafter hereof. The headings of this Series F Warrant are for convenience of reference and shall not form part of, or affect the interpretation of, this Series F Warrant. Terms used in this Series F Warrant but defined in the other Transaction Documents shall have the meanings ascribed to such terms on the Closing Date (as defined in the Securities Purchase Agreement) in such other Transaction Documents unless otherwise consented to in writing by the Holder.

13. DISPUTE RESOLUTION

(a) Submission to Dispute Resolution.

(i) In the case of a dispute relating to the Exercise Price, the Closing Sale Price, or fair market value or the arithmetic calculation of the number of Series F Warrant Shares (as the case may be) (including, without limitation, a dispute relating to the determination of any of the foregoing), the Company or the Holder (as the case may be) shall submit the dispute to the other party via facsimile (A) if by the Company, within two (2) Business Days after the occurrence of the circumstances giving rise to such dispute or (B) if by the Holder, at any time after the Holder learned of the circumstances giving rise to such dispute. If the Holder and the Company are unable to promptly resolve such dispute relating to such Exercise Price, such Closing Sale Price or such fair market value or such arithmetic calculation of the number of Series F Warrant Shares (as the case may be), at any time after the second (2nd) Business Day following such initial notice by the Company or the Holder (as the case may be) of such dispute to the Company or the Holder (as the case may be), then the Holder may, at its sole option, select an independent, reputable investment bank to resolve such dispute.

(ii) The Holder and the Company shall each deliver to such investment bank (A) a copy of the initial dispute submission so delivered in accordance with the first sentence of this Section 13 and (B) written documentation supporting its position with respect to such dispute, in each case, no later than 5:00 p.m. (New York time) by the fifth (5th) Business Day immediately following the date on which the Holder selected such

investment bank (the “**Dispute Submission Deadline**”) (the documents referred to in the immediately preceding clauses (A) and (B) are collectively referred to herein as the “**Required Dispute Documentation**”) (it being understood and agreed that if either the Holder or the Company fails to so deliver all of the Required Dispute Documentation by the Dispute Submission Deadline, then the party who fails to so submit all of the Required Dispute Documentation shall no longer be entitled to (and hereby waives its right to) deliver or submit any written documentation or other support to such investment bank with respect to such dispute and such investment bank shall resolve such dispute based solely on the Required Dispute Documentation that was delivered to such investment bank prior to the Dispute Submission Deadline). Unless otherwise agreed to in writing by both the Company and the Holder or otherwise requested by such investment bank, neither the Company nor the Holder shall be entitled to deliver or submit any written documentation or other support to such investment bank in connection with such dispute (other than the Required Dispute Documentation).

(iii) The Company and the Holder shall cause such investment bank to determine the resolution of such dispute and notify the Company and the Holder of such resolution no later than ten (10) Business Days immediately following the Dispute Submission Deadline. The fees and expenses of such investment bank shall be borne solely by the Company, and such investment bank’s resolution of such dispute shall be final and binding upon all parties absent manifest error.

(b) Miscellaneous. The Company expressly acknowledges and agrees that (i) this Section 13 constitutes an agreement to arbitrate between the Company and the Holder (and constitutes an arbitration agreement) under the rules then in effect under § 7501, et seq. of the New York Civil Practice Law and Rules (“**CPLR**”) and that the Holder is authorized to apply for an order to compel arbitration pursuant to CPLR § 7503(a) in order to compel compliance with this Section 13, (ii) a dispute relating to the Exercise Price includes, without limitation, disputes as to (A) whether an issuance or sale or deemed issuance or sale of Common Stock occurred under Section 2(b), (B) the consideration per share at which an issuance or deemed issuance of Common Stock occurred, and (C) whether an agreement, instrument, security or the like constitutes and Option or Convertible Security, (iii) the terms of this Series F Warrant and each other applicable Transaction Document shall serve as the basis for the selected investment bank’s resolution of the applicable dispute, such investment bank shall be entitled (and is hereby expressly authorized) to make all findings, determinations and the like that such investment bank determines are required to be made by such investment bank in connection with its resolution of such dispute (including, without limitation, determining (A) whether an issuance or sale or deemed issuance or sale of Common Stock occurred under Section 2(b), (B) the consideration per share at which an issuance or deemed issuance of Common Stock occurred, and (C) whether an agreement, instrument, security or the like constitutes and Option or Convertible Security and in resolving such dispute such investment bank shall apply such findings, determinations and the like to the terms of this Series F Warrant and any other applicable Transaction Documents, (iv) the Holder (and only the Holder), in its sole discretion, shall have the right to submit any dispute described in this Section 13 to any state or federal court sitting in The City of New York, Borough of Manhattan in lieu of utilizing the procedures set forth in this Section 13 and (v) nothing in this Section 13 shall limit the Holder

from obtaining any injunctive relief or other equitable remedies (including, without limitation, with respect to any matters described in this Section 13).

14. REMEDIES, CHARACTERIZATION, OTHER OBLIGATIONS, BREACHES AND INJUNCTIVE RELIEF.

The remedies provided in this Series F Warrant shall be cumulative and in addition to all other remedies available under this Series F Warrant and the other Transaction Documents, at law or in equity (including a decree of specific performance and/or other injunctive relief), and nothing herein shall limit the right of the Holder to pursue actual and consequential damages for any failure by the Company to comply with the terms of this Series F Warrant. The Company covenants to the Holder that there shall be no characterization concerning this instrument other than as expressly provided herein. Amounts set forth or provided for herein with respect to payments, exercises and the like (and the computation thereof) shall be the amounts to be received by the Holder and shall not, except as expressly provided herein, be subject to any other obligation of the Company (or the performance thereof). The Company acknowledges that a breach by it of its obligations hereunder will cause irreparable harm to the Holder and that the remedy at law for any such breach may be inadequate. The Company therefore agrees that, in the event of any such breach or threatened breach, the holder of this Series F Warrant shall be entitled, in addition to all other available remedies, to specific performance and/or temporary, preliminary and permanent injunctive or other equitable relief from any court of competent jurisdiction in any such case without the necessity of proving actual damages and without posting a bond or other security. The Company shall provide all information and documentation to the Holder that is requested by the Holder to enable the Holder to confirm the Company's compliance with the terms and conditions of this Series F Warrant (including, without limitation, compliance with Section 2 hereof). The issuance of shares and certificates for shares as contemplated hereby upon the exercise of this Series F Warrant shall be made without charge to the Holder or such shares for any issuance tax or other costs in respect thereof, provided that the Company shall not be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of any certificate in a name other than the Holder or its agent on its behalf.

15. PAYMENT OF COLLECTION, ENFORCEMENT AND OTHER COSTS. If (a) this Series F Warrant is placed in the hands of an attorney for collection or enforcement or is collected or enforced through any legal proceeding or the holder otherwise takes action to collect amounts due under this Series F Warrant or to enforce the provisions of this Series F Warrant or (b) there occurs any bankruptcy, reorganization, receivership of the company or other proceedings affecting company creditors' rights and involving a claim under this Series F Warrant, then the Company shall pay the costs incurred by the Holder for such collection, enforcement or action or in connection with such bankruptcy, reorganization, receivership or other proceeding, including, without limitation, attorneys' fees and disbursements.

16. TRANSFER.

Subject to applicable laws, this Series F Warrant may be offered for sale, sold, transferred or assigned without the consent of the Company.

17. CERTAIN DEFINITIONS.

For purposes of this Series F Warrant, the following terms shall have the following meanings:

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

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

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

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

(e) “**Bid Price**” means, for any security as of the particular time of determination, the bid price for such security on the Principal Market as reported by Bloomberg as of such time of determination, or, if the Principal Market is not the principal securities exchange or trading market for such security, the bid price of such security on the principal securities exchange or trading market where such security is listed or traded as reported by Bloomberg as of such time of determination, or if the foregoing does not apply, the bid price of such security in the over-the-counter market on the electronic bulletin board for such security as reported by Bloomberg as of such time of determination, or, if no bid price is reported for such security by Bloomberg as of such time of determination, the average of the bid prices of any market makers for such security as reported in the “pink sheets” by OTC Markets Group Inc. (formerly Pink Sheets LLC) as of such time of determination. If the Bid Price cannot be calculated for a security as of the particular time of determination on any of the foregoing bases, the Bid Price of such security as of such time of determination shall be the fair market value as mutually determined by the Company and the Holder. If the Company and the Holder are unable to agree upon the fair market value of such security, then such dispute shall be resolved in accordance with the procedures in Section 13. All such determinations shall be appropriately adjusted for any stock dividend, stock split, stock combination or other similar transaction during such period.

(f) “**Bloomberg**” means Bloomberg, L.P.

(g) “**Business Day**” means any day other than Saturday, Sunday or other day on which commercial banks in The City of New York are authorized or required by law to remain closed.

(h) “**Closing Sale Price**” means, for any security as of any date, the last closing trade price for such security on the Principal Market, as reported by Bloomberg, or, if the Principal Market begins to operate on an extended hours basis and does not designate the closing trade price, then the last trade price of such security prior to 4:00:00 p.m., New York time, as reported by Bloomberg, or, if the Principal Market is not the principal securities exchange or trading market for such security, the last trade price of such security on the principal securities exchange or trading market where such security is listed or traded as reported by Bloomberg, or if the foregoing does not apply, the last trade price of such security in the over-the-counter market on the electronic bulletin board for such security as reported by Bloomberg, or, if no last trade price is reported for such security by Bloomberg, the average of the ask prices of any market makers for such security as reported in the “pink sheets” by OTC Markets Group Inc. (formerly Pink Sheets LLC). If the Closing Sale Price cannot be calculated for a security on a particular date on any of the foregoing bases, the Closing Sale Price of such security on such date shall be the fair market value as mutually determined by the Company and the Holder. If the Company and the Holder are unable to agree upon the fair market value of such security, then such dispute shall be resolved in accordance with the procedures in Section 13. All such determinations shall be appropriately adjusted for any stock dividend, stock split, stock combination or other similar transaction during such period.

(i) “**Common Stock**” means (i) the Company’s shares of common stock, \$0.0001 par value per share, and (ii) any capital stock into which such common stock shall have been changed or any share capital resulting from a reclassification of such common stock.

(j) “**Convertible Securities**” means any stock or other security (other than Options) that is at any time and under any circumstances, directly or indirectly, convertible into, exercisable or exchangeable for, or which otherwise entitles the holder thereof to acquire, any shares of Common Stock.

(k) “**Eligible Market**” means the New York Stock Exchange, the NYSE American, The Nasdaq Global Select Market, The Nasdaq Global Market or the Principal Market.

(l) “**Expiration Date**” means the date that is the fifth (5th) anniversary of the Initial Exercise Date or, if such date falls on a day other than a Trading Day or on which trading does not take place on the Principal Market (a “**Holiday**”), the next date that is not a Holiday.

(m) “**Fundamental Transaction**” means (A) that the Company shall, directly or indirectly, including through subsidiaries, Affiliates or otherwise, in one or more related transactions, (i) consolidate or merge with or into (whether or not the Company is the surviving corporation) another Subject Entity, or (ii) sell, assign, transfer, convey or otherwise dispose of all or substantially all of the properties or assets of the Company or any of its “significant subsidiaries” (as defined in Rule 1-02 of Regulation S-X) to one or more Subject Entities, or (iii) make, or allow one or more Subject Entities to make, or allow the Company to be subject to or have its Common Stock be subject to or party to one or more Subject Entities making, a purchase, tender or exchange offer that is accepted by the holders of at least either (x) 50% of the outstanding shares of Common

Stock, (y) 50% of the outstanding shares of Common Stock calculated as if any shares of Common Stock held by all Subject Entities making or party to, or Affiliated with any Subject Entities making or party to, such purchase, tender or exchange offer were not outstanding; or (z) such number of shares of Common Stock such that all Subject Entities making or party to, or Affiliated with any Subject Entity making or party to, such purchase, tender or exchange offer, become collectively the beneficial owners (as defined in Rule 13d-3 under the 1934 Act) of at least 50% of the outstanding shares of Common Stock, or (iv) consummate a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with one or more Subject Entities whereby all such Subject Entities, individually or in the aggregate, acquire, either (x) at least 50% of the outstanding shares of Common Stock, (y) at least 50% of the outstanding shares of Common Stock calculated as if any shares of Common Stock held by all the Subject Entities making or party to, or Affiliated with any Subject Entity making or party to, such stock purchase agreement or other business combination were not outstanding; or (z) such number of shares of Common Stock such that the Subject Entities become collectively the beneficial owners (as defined in Rule 13d-3 under the 1934 Act) of at least 50% of the outstanding shares of Common Stock, or (v) reorganize, recapitalize or reclassify its Common Stock, (B) that the Company shall, directly or indirectly, including through subsidiaries, Affiliates or otherwise, in one or more related transactions, allow any Subject Entity individually or the Subject Entities in the aggregate to be or become the “beneficial owner” (as defined in Rule 13d-3 under the 1934 Act), directly or indirectly, whether through acquisition, purchase, assignment, conveyance, tender, tender offer, exchange, reduction in outstanding shares of Common Stock, merger, consolidation, business combination, reorganization, recapitalization, spin-off, scheme of arrangement, reorganization, recapitalization or reclassification or otherwise in any manner whatsoever, of either (x) at least 50% of the aggregate ordinary voting power represented by issued and outstanding Common Stock, (y) at least 50% of the aggregate ordinary voting power represented by issued and outstanding Common Stock not held by all such Subject Entities as of the date of this Series F Warrant calculated as if any shares of Common Stock held by all such Subject Entities were not outstanding, or (z) a percentage of the aggregate ordinary voting power represented by issued and outstanding shares of Common Stock or other equity securities of the Company sufficient to allow such Subject Entities to effect a statutory short form merger or other transaction requiring other shareholders of the Company to surrender their shares of Common Stock without approval of the shareholders of the Company or (C) directly or indirectly, including through subsidiaries, Affiliates or otherwise, in one or more related transactions, the issuance of or the entering into any other instrument or transaction structured in a manner to circumvent, or that circumvents, the intent of this definition in which case this definition shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this definition to the extent necessary to correct this definition or any portion of this definition which may be defective or inconsistent with the intended treatment of such instrument or transaction.

- (n) “**Group**” means a “group” as that term is used in Section 13(d) of the 1934 Act and as defined in Rule 13d-5 thereunder.
- (o) “**Options**” means any rights, warrants or options to subscribe for or purchase shares of Common Stock or Convertible Securities.

(p) “**Parent Entity**” of a Person means an entity that, directly or indirectly, controls the applicable Person and whose common stock or equivalent equity security is quoted or listed on an Eligible Market, or, if there is more than one such Person or Parent Entity, the Person or Parent Entity with the largest public market capitalization as of the date of consummation of the Fundamental Transaction.

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

(r) “**Principal Market**” means the The Nasdaq Capital Market.

(s) “**SEC**” means the United States Securities and Exchange Commission or the successor thereto.

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

(u) “**Successor Entity**” means the Person (or, if so elected by the Holder, the Parent Entity) formed by, resulting from or surviving any Fundamental Transaction or the Person (or, if so elected by the Holder, the Parent Entity) with which such Fundamental Transaction shall have been entered into.

(v) “**Trading Day**” means, as applicable, (x) with respect to all price or trading volume determinations relating to the Common Stock, any day on which the Common Stock is traded on the Principal Market, or, if the Principal Market is not the principal trading market for the Common Stock, then on the principal securities exchange or securities market on which the Common Stock is then traded, provided that “Trading Day” shall not include any day on which the Common Stock is scheduled to trade on such exchange or market for less than 4.5 hours or any day that the Common Stock is suspended from trading during the final hour of trading on such exchange or market (or if such exchange or market does not designate in advance the closing time of trading on such exchange or market, then during the hour ending at 4:00:00 p.m., New York time) unless such day is otherwise designated as a Trading Day in writing by the Holder or (y) with respect to all determinations other than price determinations relating to the Common Stock, any day on which The New York Stock Exchange (or any successor thereto) is open for trading of securities.

(w) “**VWAP**” means, for any security as of any date, the dollar volume-weighted average price for such security on the Principal Market (or, if the Principal Market is not the principal trading market for such security, then on the principal securities exchange or securities market on which such security is then traded) during the period beginning at 9:30:01 a.m., New York time, and ending at 4:00:00 p.m., New York time, as reported by Bloomberg through its “HP” function (set to weighted average) or, if the foregoing does not apply, the dollar volume-weighted average price of such security in the over-the-counter market on the electronic bulletin board for such security during the period beginning at 9:30:01 a.m., New York time, and ending at 4:00:00 p.m., New York time, as reported by Bloomberg, or, if no dollar volume-weighted average price is reported for such security by Bloomberg for such hours, the average of the highest closing bid price and the lowest closing ask price of any of the market makers for such security as

reported in the “pink sheets” by OTC Markets Group Inc. (formerly Pink Sheets LLC). If the VWAP cannot be calculated for such security on such date on any of the foregoing bases, the VWAP of such security on such date shall be the fair market value as mutually determined by the Company and the Holder. If the Company and the Holder are unable to agree upon the fair market value of such security, then such dispute shall be resolved in accordance with the procedures in Section 13. All such determinations shall be appropriately adjusted for any stock dividend, stock split, stock combination, recapitalization or other similar transaction during such period.

[signature page follows]

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

TROVAGENE, INC.

By:

Name:

Title:

EXERCISE NOTICE

TO BE EXECUTED BY THE REGISTERED HOLDER TO EXERCISE THIS
SERIES F WARRANT TO PURCHASE COMMON STOCK

TROVAGENE, INC.

The undersigned holder hereby elects to exercise the Series F Warrant to Purchase Common Stock No. _____ (the "Series F Warrant") of Trovogene, Inc., a Delaware corporation (the "Company") as specified below. Capitalized terms used herein and not otherwise defined shall have the respective meanings set forth in the Series F Warrant.

- 1. Form of Exercise Price. The Holder intends that payment of the Aggregate Exercise Price shall be made as:
 - o a "Cash Exercise" with respect to _____ Series F Warrant Shares; and/or
 - o a "Cashless Exercise" with respect to _____ Series F Warrant Shares.

In the event that the Holder has elected a Cashless Exercise with respect to some or all of the Series F Warrant Shares to be issued pursuant hereto, the Holder hereby represents and warrants that this Exercise Notice was executed by the Holder at _____ [a.m.][p.m.] on the date set forth below.

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

- 3. Delivery of Series F Warrant Shares. The Company shall deliver to Holder, or its designee or agent as specified below, _____ shares of Common Stock in accordance with the terms of the Series F Warrant. Delivery shall be made to Holder, or for its benefit, as follows:

- o Check here if requesting delivery as a certificate to the following name and to the following address:

Issue to: _____



Check here if requesting delivery by Deposit/Withdrawal at Custodian as follows:

DTC Participant:

DTC Number:

Account Number:

Date: _____ , _____

Name of Registered Holder

By: _____

Name:

Title:

Tax ID:

Facsimile:

E-mail Address:

ACKNOWLEDGMENT

The Company hereby acknowledges this Exercise Notice and hereby directs _____ to issue the above indicated number of shares of Common Stock in accordance with the Transfer Agent Instructions dated _____, 201____, from the Company and acknowledged and agreed to by _____.

TROVAGENE, INC.

By: _____
Name: _____
Title: _____
