

**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

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**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): **October 25, 2016**

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**TONIX PHARMACEUTICALS HOLDING CORP.**

(Exact name of registrant as specified in its charter)

**Nevada**  
(State or Other Jurisdiction  
of Incorporation)

**001-36019**  
(Commission  
File Number)

**26-1434750**  
(IRS Employer  
Identification No.)

509 Madison Avenue, Suite 306, New York, New York 10022  
(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code: (212) 980-9155

**Copy of correspondence to:**

Marc J. Ross, Esq.  
James M. Turner, Esq.  
Sichenzia Ross Ference Kesner LLP  
61 Broadway  
New York, New York 10006  
Tel: (212) 930-9700 Fax: (212) 930-9725

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 (see General Instruction A.2. below):

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
  - Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
  - Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
  - Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))
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**Item 1.01 Entry into a Material Definitive Agreement.**

On October 26, 2016, Tonix Pharmaceuticals Holding Corp. (the “Company”) entered into an underwriting agreement (the “Underwriting Agreement”) with Dawson James Securities, Inc. (the “Underwriter”), relating to the issuance and sale of 9,500,000 units (“Units”), with each Unit consisting of one (1) share of the Company’s common stock, par value \$0.001 per share (“Common Stock”) and a warrant to purchase 0.5 of a share of Common Stock. The public offering price for each Unit is \$0.55. Because we are prohibited from issuing fractional shares, the warrants can only be exercised in lots of two, which means that each holder must exercise two warrants to receive one share of Common Stock, or an aggregate of 4,750,000 shares of Common Stock. The warrants have an initial exercise price of \$0.63 per share and have a term of five years.

Pursuant to the Underwriting Agreement, we agreed to pay the Underwriter a cash fee equal to 8% of the aggregate gross proceeds raised in this offering and to issue the Underwriter warrants to purchase such number of shares of Common Stock equal to 5% of the number of Units sold in the offering. The warrants issued to the Underwriter will have an initial exercise price of \$0.6875 per share and have a term of five years. We also agreed to pay legal fees and expenses of the underwriter’s legal counsel, in any case not to exceed \$75,000.

The Underwriting Agreement contains customary representations, warranties and agreements by the Company, customary conditions to closing, indemnification obligations of the Company and the Underwriters, including for liabilities under the Securities Act of 1933, as amended (the “Securities Act”), other obligations of the parties and termination provisions. The representations, warranties and covenants contained in the Underwriting Agreement were made only for purposes of such agreement and as of specific dates, were solely for the benefit of the parties to such agreement, and may be subject to limitations agreed upon by the contracting parties, including being qualified by confidential disclosures exchanged between the parties in connection with the execution of the Underwriting Agreement.

The Units are being offered and sold pursuant to the Company’s effective shelf registration statement on Form S-3 and an accompanying prospectus (Registration Statement No. 333-197824) filed with the Securities and Exchange Commission (the “SEC”) on August 1, 2014 and declared effective by the SEC on August 15, 2014, and a preliminary and final prospectus supplement filed with the SEC in connection with the Company’s takedown relating to the offering. A copy of the opinion of Sichenzia Ross Ference Kesner LLP relating to the legality of the issuance and sale of the Units in the offering is attached as Exhibit 5.1 hereto.

The net proceeds to the Company from the sale of the Units is expected to be approximately \$4.6 million, after deducting the underwriting discount and estimated offering expenses payable by the Company, assuming no exercise by the Underwriter of the 45-day option which the Company has granted the Underwriter under the terms of the Underwriting Agreement to purchase up to an additional 1,425,000 shares of Common Stock and/or warrants to purchase 712,500 shares of Common Stock to cover over-allotments, if any. The Underwriting Agreement is filed as an exhibit to this report, and the description of the terms of the Underwriting Agreement in this report is qualified in its entirety by reference to such exhibit. The offering is expected to close on or about October 31, 2016, subject to customary closing conditions.

In furtherance of the offering, on October 26, 2016, we entered into a warrant agency agreement (the “Warrant Agreement”) with VStock Transfer, LLC (“VStock”), pursuant to which VStock agreed to act as our transfer agent with respect to the Warrants.

The foregoing description of the terms of the Underwriting Agreement, the Warrants and Warrant Agreement do not purport to be complete and is subject to, and qualified in its entirety by reference to, the Underwriting Agreement, the form of Warrant and the Warrant Agreement, which are filed herewith as Exhibits 1.1, 1.2 and 4.1, respectively, and are incorporated herein by reference.

**Item 8.01 Other Events.**

On October 25, 2016, the Company issued a press release announcing that it had commenced a proposed public offering of its Units. A copy of the press release is attached hereto as Exhibit 99.1 to this Current Report on Form 8-K and is incorporated herein by reference.

On October 26, 2016, the Company issued a press release announcing that it had priced the offering of its Units. A copy of the press release is attached hereto as Exhibit 99.2 to this Current Report on Form 8-K and is incorporated herein by reference.

***Forward-Looking Statements***

Certain statements in this Current Report on Form 8-K are forward-looking statements that involve a number of risks and uncertainties. Such forward-looking statements include statements about the expected settlement of the sale and purchase of securities described herein and the Company's receipt of net proceeds therefrom. For such statements, the Company claims the protection of the Private Securities Litigation Reform Act of 1995. Actual events or results may differ materially from the Company's expectations. Factors that could cause actual results to differ materially from the forward-looking statements include, but are not limited to, the Company's ability to satisfy applicable closing conditions under the Underwriting Agreement. Additional factors that could cause actual results to differ materially from those stated or implied by the Company's forward-looking statements are disclosed in the Prospectus Supplement and accompanying prospectus and the Company's reports filed with the Securities and Exchange Commission.

**Item 9.01 Financial Statements and Exhibits.**

(d) Exhibits.

- 1.1 Underwriting Agreement, dated October 26, 2016, by and between Tonix Pharmaceuticals Holding Corp and Dawson James Securities, Inc.
- 4.1 Warrant Agency Agreement, dated October 26, 2016 with a copy of the form of warrant, by and between Tonix Pharmaceuticals Holding Corp and VStock Transfer, LLC
- 5.1 Opinion of Sichenzia Ross Ference Kesner LLP
- 23.1 Consent of Sichenzia Ross Ference Kesner LLP (included in Opinion of Sichenzia Ross Ference Kesner LLP filed as Exhibit 5.1)
- 99.1 Press Release, dated October 25, 2016, issued by Tonix Pharmaceuticals Holding Corp.
- 99.2 Press Release, dated October 26, 2016, issued by Tonix Pharmaceuticals Holding Corp.

**SIGNATURE**

Pursuant to the requirement of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

**TONIX PHARMACEUTICALS HOLDING CORP.**

Date: October 26, 2016

By: /s/ BRADLEY SAENGER

Bradley Saenger

Chief Financial Officer

UNDERWRITING AGREEMENT

October 26, 2016

Dawson James Securities, Inc.  
As Representative of the Underwriters named on Schedule 1 attached hereto  
1 North Federal Highway, 5<sup>th</sup> Floor  
Boca Raton, FL 33432

Ladies and Gentlemen:

The undersigned, Tonix Pharmaceuticals Holding Corp. (the “Company”), hereby confirms its agreement (this “Agreement”) with Dawson James Securities, Inc. (the “Representative”) and with the other underwriters, if any, named on Schedule 1 hereto for which the Representative is acting as representative (the Representative and such other underwriters, if any, being collectively called the “Underwriters” or, individually, an “Underwriter”) as follows:

1. Purchase and Sale of Units.

(a) Firm Shares and Firm Warrants.

(i) Nature and Purchase of Firm Shares and Firm Warrants.

(A) On the basis of the representations and warranties herein contained, but subject to the terms and conditions herein set forth, the Company agrees to issue and sell to the several Underwriters, an aggregate of a combination of (a) 9,500,000 shares (“Firm Shares”) of the Company’s common stock, par value \$0.001 (the “Common Shares”), and (b) Warrants to purchase 4,750,000 Common Shares (the “Firm Warrants”). The Firm Shares and the Firm Warrants will be sold as units (the “Units”, with each Unit consisting of one Firm Share and 0.5 Firm Warrants). The Units, and the Shares (as defined below) included within the Units and the Warrants (as defined below) comprising the Units, as well as the Common Shares issuable upon exercise of the Warrants (the “Warrant Shares”), are hereinafter referred to together as the “Firm Securities.”

(B) The Underwriters, severally and not jointly, agree to purchase from the Company the number of Units set forth opposite their respective names on Schedule 1 attached hereto and made a part hereof at a purchase price of \$0.506 (the “Purchase Price”) per Unit (92% of the public offering price per Unit), provided, however, that the Purchase Price shall be \$0.528 per Unit (96% of the public offering price per Unit) for shares purchased by any officer or director of the Company (including any entity under their control). The Units are to be offered initially to the public at the offering price set forth on the cover page of the Prospectus (as defined in Section 2(a)(iii)(A) hereof).

(ii) Unit Payment and Delivery.

(A) Delivery and payment for the Units shall be made at 11:00 a.m., Eastern time, on the third (3<sup>rd</sup>) Business Day following the date hereof (the “Effective Date”) (or the fourth (4<sup>th</sup>) Business Day following the Effective Date if this Agreement is executed after 4:01 p.m., Eastern time) or at such earlier time as shall be agreed upon by the Representative and the Company, at the offices of Schiff Hardin LLP, 901 K Street NW, Suite 700, Washington DC 20001 (“Representative Counsel”), or at such other place (or by electronic transmission) as shall be agreed upon by the Representative and the Company. The hour and date of delivery and payment for the Units is called the “Closing Date.”

(B) Payment for the Units shall be made prior to 4:30 p.m., Eastern time, on the Closing Date by wire transfer in federal (same day) funds, payable to the order of the Company upon delivery of the Firm Shares and Firm Warrants (in form and substance satisfactory to the Underwriters) representing the securities comprising the Units (or through the facilities of the Depository Trust Company (“DTC”) or with respect to the Firm Warrants by physical delivery), for the account of the Underwriters. The securities comprising the Units shall be registered in such name or names and in such authorized denominations as the Representative may request in writing at least two (2) full Business Days prior to the Closing Date. The term “Business Day” means any day other than a Saturday, a Sunday or a legal holiday or a day on which banking institutions are authorized or obligated by law to close in New York, New York.

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(b) Over-Allotment Option.

(i) Option Securities. For the purposes of covering any over-allotments in connection with the distribution and sale of the Units, the Representative is hereby granted an option (the "Over-Allotment Option") to purchase, in the aggregate, (a) up to 1,425,000 Common Shares (15% of the Firm Shares) at a purchase price of \$0.549 per one Common Share (the "Option Shares" and together with the Firm Shares, the "Shares"), and/or (b) Warrants to purchase up to 712,500 Common Shares (15% of the Firm Warrants) at a purchase price of \$0.001 per one Warrant (for a full Common Share) (the "Option Warrants" and together with the Firm Warrants, the "Warrants"), representing up to 15% of the Firm Units sold in the Offering (as defined below), which may be purchased in any combination of Option Shares and/or the Option Warrants. The Option Shares and the Option Warrants, as well as the Common Shares issuable upon exercise of the Option Warrants, are hereinafter referred to together as the "Option Securities." The Firm Securities and the Option Securities are collectively referred to as the "Public Securities." The Public Securities shall be issued directly by the Company and shall have the rights and privileges described in the Registration Statement, the Pricing Disclosure Package and the Prospectus referred to below. The offering and sale of the Public Securities is hereinafter referred to as the "Offering."

(ii) Option Closing Purchase Price. In connection with an exercise of the Over-Allotment Option, the purchase price to be paid for the Option Shares and/or Option Warrants to be paid on an Option Closing Date (defined below), is hereafter referred to as the "Option Closing Purchase Price".

(iii) Exercise of Over-Allotment Option. The Over-Allotment Option granted pursuant to this Section 1(b) may be exercised by the Representative as to all (at any time) or any part (from time to time) of any combination of the Option Securities within 45 days after the execution date of this Agreement. An Underwriter will not be under any obligation to purchase any Option Securities prior to the exercise of the Over-Allotment Option by the Representative. The Over-Allotment Option granted hereby may be exercised by the giving of oral notice to the Company from the Representative, which must be confirmed in writing by overnight mail or by electronic transmission setting forth the number of Option Shares and/or Option Warrants to be purchased and the date and time for delivery of and payment for the Option Securities (each, an "Option Closing Date"), which will not be earlier than two (2) Business Days nor later than three (3) full Business Days after the date of the notice or such other time as shall be agreed upon by the Company and the Representative, at the offices of the Representative Counsel, or at such other place (including remotely by electronic transmission) as shall be agreed upon by the Company and the Representative. If such delivery and payment for the Option Securities does not occur on the Closing Date, each Option Closing Date will be as set forth in the notice. Upon exercise of the Over-Allotment Option, the Company will become obligated to convey to the Underwriters, and, subject to the terms and conditions set forth herein, the Underwriters will become obligated to purchase, the number of Option Securities specified in such notice. The Representative may cancel the Over-Allotment Option at any time prior to the expiration of the Over-Allotment Option by written notice to the Company (except to the extent the Representative has exercised the Over-Allotment Option in accordance herewith).

(iv) Payment and Delivery. Payment for the Option Securities shall be made on the Option Closing Date by wire transfer in federal (same day) funds, payable to the order of the Company upon delivery of the certificates (in form and substance satisfactory to the Underwriters) representing the Option Securities (or through the facilities of DTC) for the account of the Underwriters. The Option Securities shall be registered in such name or names and in such authorized denominations as the Representative may request in writing at least two (2) full Business Days prior to the Option Closing Date.

(c) Representative's Warrant.

(i) Representative's Warrant. The Company hereby agrees to issue to the Representative (and /or its designees) on the Closing Date a warrant (the "Representative's Warrant") for the purchase of a number of Common Shares equal to 5% of the number of Units sold in the Offering, pursuant to a warrant agreement in the form attached hereto as Exhibit A (the "Representative's Warrant Agreement"), at an initial exercise price of \$0.6875, which is equal to 125% of the public offering price per Unit, provided, however, that the Representative shall only receive Representative's Warrants equal to 4% of the number of Units sold in the Offering to any officer or director of the Company (including any entity under their control). The Representative's Warrant and the shares of Common Stock issuable upon exercise of the Representative's Warrants are hereinafter referred to together as the "Representative's Securities." The Representative understands and agrees that there are significant restrictions pursuant to FINRA Rule 5110 against transferring the Representative's Warrant and the underlying securities during the one hundred eighty (180) days after the Effective Date and by its acceptance thereof shall agree that it will not sell, transfer, assign, pledge or hypothecate the Representative's Warrant, or any portion thereof, or be the subject of any hedging, short sale, derivative, put or call transaction that would result in the effective economic disposition of such securities for a period of one hundred eighty (180) days following the Effective Date to anyone other than (i) an Underwriter or a selected dealer in connection with the Offering, or (ii) a bona fide officer or partner of the Representative or of any such Underwriter or selected dealer; or as otherwise expressly permitted by Rule 5110(g), and only if any such transferee agrees to the foregoing lock-up restrictions.

(ii) Delivery. Delivery of the Representative's Warrant shall be made on the Closing Date or Option Closing Date, as applicable, and shall be issued in the name or names and in such authorized denominations as the Representative may request.

2. Representations and Warranties of the Company. The Company represents and warrants to the Underwriters as of the Applicable Time (as defined below) and as of the Closing Date, as follows:

(a) Registration Matters.

(iii) Pursuant to the Securities Act.

(A) The Company has filed with the Commission a registration statement on Form S-3 (File No. 333-197824) including a related prospectus, for the registration of certain securities (the "Shelf Securities"), including the Public Securities and Representative's Securities under the Securities Act, and the rules and regulations thereunder (the "Securities Act Regulations"). The registration statement has been declared effective under the Securities Act by the Commission. The registration statement, as of any time, means such registration statement as amended by any post-effective amendments thereto to such time, including the exhibits and any schedules thereto at such time, the documents incorporated or deemed to be incorporated by reference therein at such time pursuant to Form S-3 under the Securities Act and the documents otherwise deemed to be a part thereof as of such time pursuant to Rule 430A ("Rule 430A") or Rule 430B under the Securities Act Regulations ("Rule 430B"), is referred to herein as the "Registration Statement"; provided, however, that the "Registration Statement" without reference to a time means such registration statement as amended by any post-effective amendments thereto as of the time of the first contract of sale for the Public Securities, which time shall be considered the "new effective date" of such registration statement with respect to the Public Securities within the meaning of paragraph (f)(2) of Rule 430B, including the exhibits and schedules thereto as of such time, the documents incorporated or deemed incorporated by reference therein at such time pursuant to Form S-3 under the Securities Act and the documents otherwise deemed to be a part thereof as of such time pursuant to the Rule 430A or Rule 430B. Any registration statement filed pursuant to Rule 462(b) of the Securities Act Regulations is hereinafter called the "Rule 462(b) Registration Statement," and after such filing the term "Registration Statement" shall include the 462(b) Registration Statement. The prospectus covering the Shelf Securities included in the Form S-3 dated August 1, 2014 in the form first used to confirm sales of the Public Securities (or in the form first made available to the Underwriter by the Company to meet requests of purchasers pursuant to Rule 173 under the Securities Act) is hereinafter referred to as the "Base Prospectus." The Base Prospectus, as supplemented by the prospectus supplement specifically related to the Public Securities in the form first used to confirm sales of the Public Securities (or in the form first made available to the Underwriter by the Company to meet requests of purchasers pursuant to Rule 173 under the Securities Act), is hereinafter referred to, collectively, as the "Prospectus," and the term "Preliminary Prospectus" means any preliminary form of the Prospectus, including any preliminary prospectus supplement specifically related to the Public Securities, filed with the Commission by the Company with the consent of the Underwriter.

(B) All references in this Agreement to financial statements and schedules and other information which is "contained," "included" or "stated" (or other references of like import) in the Registration Statement, any Preliminary Prospectus or the Prospectus shall be deemed to include all such financial statements and schedules and other information incorporated or deemed incorporated by reference in the Registration Statement, such Preliminary Prospectus or the Prospectus, as the case may be, prior to the execution and delivery of this Agreement; and all references in this Agreement to amendments or supplements to the Registration Statement, any Preliminary Prospectus or the Prospectus shall be deemed to include the filing of any document under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and the rules and regulations thereunder (the "Exchange Act Regulations"), incorporated or deemed to be incorporated by reference in the Registration Statement, such Preliminary Prospectus or the Prospectus, as the case may be, at or after the execution and delivery of this Agreement.

(C) The term "Pricing Disclosure Package" means (i) the Preliminary Prospectus, as most recently amended or supplemented immediately prior to the Applicable Time (as defined herein), (ii) the Issuer Free Writing Prospectuses (as defined below), if any, identified in Schedule I hereto, (iii) any other Free Writing Prospectus (as defined below) that the parties hereto shall hereafter expressly agree to treat as part of the Pricing Disclosure Package, and (iv) the information included on Schedule 2 of this Agreement.

(D) “Applicable Time” means 4:30 p.m., Eastern time, on the date of this Agreement.

(E) “Issuer Free Writing Prospectus” means any issuer free writing prospectus, as defined in Rule 433 of the Securities Act Regulations. The term “Free Writing Prospectus” means any free writing prospectus, as defined in Rule 405 of the Securities Act Regulations.

(F) “Agreement to Renew Registration Statement.” With respect to the Warrant Shares, the Company agrees, to the extent that the Company is eligible to use Form S-3, to file a new registration statement pursuant to Rule 415(a)(5)-(6) to maintain the registration of such shares in the timeframe set forth by such rule.

(b) “Stock Exchange Listing.” The Common Shares are approved for listing on NASDAQ Global Market (the “Exchange”) and the Company has taken no action designed to, or likely to have the effect of, delisting the Common Shares from the Exchange, and except for the bid price deficiency notification received from the Exchange on October 18, 2016, the Company has not received any notification that the Exchange is contemplating terminating such listing.

(c) “No Stop Orders, etc.” Neither the Commission nor, to the Company’s knowledge, any state regulatory authority has issued any order preventing or suspending the use of the Registration Statement, any Preliminary Prospectus or the Prospectus or has instituted or, to the Company’s knowledge, threatened to institute, any proceedings with respect to such an order. The Company has complied with each request (if any) from the Commission for additional information.

(d) “Subsidiaries.” Each of the Company’s subsidiaries have been duly incorporated and are validly existing as entities in good standing under the laws of jurisdictions of their respective organization, with power and authority to own, lease and operate their respective properties and conduct their respective businesses as described in the Preliminary Prospectus, and have been duly qualified as foreign corporations for the transaction of business and are in good standing under the laws of each other jurisdictions in which they own or lease properties or conduct any business so as to require such qualification, except where the failure so to qualify or be in good standing would not reasonably be expected to have a Material Adverse Change (as defined in Section 2(f)(i)); all of the issued and outstanding capital stock (or other ownership interests) of such subsidiaries has been duly and validly authorized and issued, is fully paid and non-assessable and is owned, directly and indirectly, by the Company free and clear of any security interest, mortgage, pledge, lien, encumbrance, claim or equity. Unless otherwise set forth, all references in this Section 2 to the “Company” shall include references to all such subsidiaries. Neither the Company nor any subsidiary is in violation or default of any of the provisions of its respective certificate or articles of incorporation, bylaws or other organizational or charter documents.

(e) “Disclosures in Registration Statement.”

(i) “Compliance with Securities Act and 10b-5 Representation.”

(A) Each of the Registration Statement and any post-effective amendment thereto, at the time it became effective, complied in all material respects with the requirements of the Securities Act and the Securities Act Regulations. Each Preliminary Prospectus, including the prospectus filed as part of the Registration Statement as originally filed or as part of any amendment or supplement thereto, and the Prospectus, at the time each was filed with the Commission, complied in all material respects with the requirements of the Securities Act and the Securities Act Regulations. Each Preliminary Prospectus delivered to the Underwriters for use in connection with this Offering and the Prospectus was or will be identical to the electronically transmitted copies thereof filed with the Commission pursuant to EDGAR, except to the extent permitted by Regulation S-T.

(B) Neither the Registration Statement nor any amendment thereto, at its effective time, as of the Applicable Time, at the Closing Date, contained, contains or will contain an untrue statement of a material fact or omitted, omits or will omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading.



(C) The Pricing Disclosure Package, as of the Applicable Time, at the Closing Date, did not and will not include an untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; and each Issuer Free Writing Prospectus does not conflict with the information contained in the Registration Statement, any Preliminary Prospectus, or the Prospectus, and each such Issuer Free Writing Prospectus, as supplemented by and taken together with the Preliminary Prospectus as of the Applicable Time, did not include an untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading; provided, however, that this representation and warranty shall not apply to statements made or statements omitted in reliance upon and in conformity with written information furnished to the Company with respect to the Underwriters by the Representative expressly for use in the Registration Statement, the Preliminary Prospectus or the Prospectus or any amendment thereof or supplement thereto. The parties acknowledge and agree that such information provided by or on behalf of any Underwriter consists solely of the following disclosure contained in the following paragraphs in the “Underwriting” section of the Prospectus: (i) the names of the several underwriters, (ii) the concession and reallowance figures appearing in the third paragraph thereof, and (iii) the information under the subsections “*Discounts and Commissions*,” and “*Stabilization*” (the “Underwriters’ Information”); and

(D) Neither the Prospectus nor any amendment or supplement thereto, as of its issue date, at the time of any filing with the Commission pursuant to Rule 424(b), at the Closing Date, included, includes or will include an untrue statement of a material fact or omitted, omits or will omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided, however, that this representation and warranty shall not apply to the Underwriters’ Information.

(ii) Disclosure of Agreements. The agreements and documents described in the Registration Statement, the Pricing Disclosure Package and the Prospectus conform in all material respects to the descriptions thereof contained therein and there are no agreements or other documents required by the Securities Act and the Securities Act Regulations to be described in the Registration Statement, the Pricing Disclosure Package and the Prospectus or to be filed with the Commission as exhibits to the Registration Statement, that have not been so described or filed. Each agreement or other instrument (however characterized or described) to which the Company is a party or by which it is or may be bound or affected and (i) that is referred to in the Registration Statement, the Pricing Disclosure Package and the Prospectus, and (ii) is material to the Company’s business, has been duly authorized and validly executed by the Company, is in full force and effect in all material respects and is enforceable against the Company and, to the Company’s knowledge, the other parties thereto, in accordance with its terms, except (w) for such agreements or instruments for enforceability of which would not reasonably be expected to result, individually or in the aggregate, in a Material Adverse Change, (x) as such enforceability may be limited by bankruptcy, insolvency, reorganization or similar laws affecting creditors’ rights generally, (y) as enforceability of any indemnification or contribution provision may be limited under the federal and state securities laws, and (z) that the remedy of specific performance and injunctive and other forms of equitable relief may be subject to the equitable defenses and to the discretion of the court before which any proceeding therefor may be brought. None of such agreements or instruments has been assigned by the Company, and neither the Company nor, to the Company’s knowledge, any other party is in material default thereunder and, to the Company’s knowledge, no event has occurred that, with the lapse of time or the giving of notice, or both, would constitute a material default thereunder, except as disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus, or which would not reasonably be expected to result, individually or in the aggregate, in a Material Adverse Change. To the Company’s knowledge, performance by the Company of the material provisions of such agreements or instruments will not result in a violation of any existing applicable law, rule, regulation, judgment, order or decree of any governmental agency or court, domestic or foreign, having jurisdiction over the Company or any of its assets or businesses (each, a “Governmental Entity”), including, without limitation, those relating to environmental laws and regulations, except such violations which would not reasonably be expected to result, individually or in the aggregate, in a Material Adverse Change.

(iii) Regulations. The disclosures in the Registration Statement, the Pricing Disclosure Package and the Prospectus concerning the effects of federal, state, local and foreign regulation on the Company’s business as currently contemplated are correct in all material respects and no other such regulations are required to be disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus which are not so disclosed.

(f) Changes After Dates in Registration Statement.

(i) No Material Adverse Change. Since the respective dates as of which information is given in the Registration Statement, the Pricing Disclosure Package and the Prospectus, except as otherwise specifically stated therein: (i) there has been no material adverse change in the financial position or results of operations of the Company, nor any change or development that, singularly or in the aggregate, would reasonably be expected to involve a material adverse change or a reasonably foreseeable prospective material adverse change, in or affecting the condition (financial or otherwise), results of operations, business, assets or prospects of the Company (a “Material Adverse Change”); (ii) there have been no material transactions entered into by the Company, other than as contemplated pursuant to this Agreement; and (iii) no officer or director of the Company has resigned from any position with the Company.

(ii) Recent Securities Transactions, etc. Subsequent to the respective dates as of which information is given in the Registration Statement, the Pricing Disclosure Package and the Prospectus, and except as may otherwise be indicated or contemplated herein or disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus, the Company has not: (i) issued any securities (other than (i) grants under any stock compensation plan and (ii) Common Shares issued upon exercise or conversion of option, warrants or convertible securities described in the Registration Statement, the Pricing Disclosure Package and the Prospectus) or incurred any liability or obligation, direct or contingent, for borrowed money; or (ii) declared or paid any dividend or made any other distribution on or in respect to its capital stock.

(g) Independent Accountants. To the knowledge of the Company, EisnerAmper LLP, during such time as it was engaged by the Company (the “Auditors”), has been and is an independent registered public accounting firm as required by the Securities Act and the Securities Act Regulations and the Public Company Accounting Oversight Board. During such time period in which the Auditors served as the Company’s independent registered public accounting firm the Auditors did not or have not, during the periods covered by the financial statements included or incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus, provided to the Company any non-audit services, as such term is used in Section 10A(g) of the Exchange Act.

(h) SEC Reports; Financial Statements, etc. The Company has complied in all material respects with requirements to file all reports, schedules, forms, statements and other documents required to be filed by it under the Securities Act and the Exchange Act, including pursuant to Section 13(a) or 15(d) thereof (the foregoing materials, as amended, including the exhibits thereto and documents incorporated by reference therein, being collectively referred to herein as the “SEC Reports”) on a timely basis or has received a valid extension of such time of filing and has filed any such SEC Reports prior to the expiration of any such extension. As of their respective dates, the SEC Reports complied in all material respects with the requirements of the Securities Act and the Exchange Act and the rules and regulations of the Commission promulgated thereunder, and none of the SEC Reports, when filed, contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading. The financial statements of the Company included in the SEC Reports comply in all material respects with applicable accounting requirements and the rules and regulations of the Commission with respect thereto as in effect at the time of filing. Such financial statements have been prepared in accordance with United States generally accepted accounting principles applied on a consistent basis during the periods involved (“GAAP”), except as may be otherwise specified in such financial statements or the notes thereto and except that unaudited financial statements may not contain all footnotes required by GAAP, and fairly present in all material respects the financial position of the Company and its consolidated subsidiaries as of and for the dates thereof and the results of operations and cash flows for the periods then ended, subject, in the case of unaudited statements, to normal, immaterial, year-end audit adjustments. The financial statements, including the notes thereto and supporting schedules included or incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus, fairly present in all material respects the financial position and the results of operations of the Company at the dates and for the periods to which they apply; and such financial statements have been prepared in conformity with GAAP, consistently applied throughout the periods involved (provided that unaudited interim financial statements are subject to year-end audit adjustments that are not expected to be material in the aggregate and do not contain all footnotes required by GAAP); and the supporting schedules included or incorporated by reference in the Registration Statement present fairly in all material respects the information required to be stated therein. Except as included therein, no historical or pro forma financial statements are required to be included in the Registration Statement, the Pricing Disclosure Package or the Prospectus under the Securities Act or the Securities Act Regulations. The pro forma and pro forma as adjusted financial information and the related notes, if any, included or incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus have been properly compiled and prepared in accordance with the applicable requirements of the Securities Act and the Securities Act Regulations and present fairly in all material respects the information shown therein, and the assumptions used in the preparation thereof are reasonable and the adjustments used therein are appropriate to give effect to the transactions and circumstances referred to therein. All disclosures contained in the Registration Statement, the Pricing Disclosure Package or the Prospectus regarding “non-GAAP financial measures” (as such term is defined by the rules and regulations of the Commission), if any, comply with Regulation G of the Exchange Act and Item 10 of Regulation S-K of the Securities Act, to the extent applicable. Each of the Registration Statement, the Pricing Disclosure Package and the Prospectus discloses all material off-balance sheet transactions, arrangements, obligations (including contingent obligations), and other relationships of the Company with unconsolidated entities or other persons that may have a material current or future effect on the Company’s financial condition, changes in financial condition, results of operations, liquidity, capital expenditures, capital resources, or significant components of revenues or expenses. Except as disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus, (a) the Company has not incurred any material liabilities or obligations, direct or contingent, or entered into any material transactions other than in the ordinary course of business, (b) the Company has not declared or paid any dividends or made any distribution of any kind with respect to its capital stock, (c) there has not been any change in the capital stock of the Company (other than (i) grants under any stock compensation plan and (ii) Common Shares issued upon exercise or conversion of option, warrants or convertible securities described in the Registration Statement, the Pricing Disclosure Package and the Prospectus), and (d) there has not been any Material Adverse Change in the Company’s long-term or short-term debt.

( i ) Authorized Capital; Options, etc. The Company had, at the date or dates indicated in the Registration Statement, the Pricing Disclosure Package and the Prospectus, the duly authorized, issued and outstanding capitalization as set forth therein. Based on the assumptions stated in the Registration Statement, the Pricing Disclosure Package and the Prospectus, the Company will have on the Closing Date the adjusted stock capitalization set forth therein. Except as set forth or incorporated by reference in, or contemplated by, the Registration Statement, the Pricing Disclosure Package and the Prospectus, on the Effective Date, as of the Applicable Time, and on the Closing Date, there will be no stock options, warrants, or other rights to purchase or otherwise acquire any authorized, but unissued Common Shares or any security convertible or exercisable into Common Shares, or any contracts or commitments to issue or sell Common Shares or any such options, warrants, rights or convertible securities.

(j) Valid Issuance of Securities, etc.

( i ) Outstanding Securities. All issued and outstanding securities of the Company issued prior to the transactions contemplated by this Agreement have been duly authorized and validly issued and are fully paid and non-assessable; the holders thereof have no rights of rescission with respect thereto, and are not subject to personal liability by reason of being such holders; and none of such securities were issued in violation of the preemptive rights of any holders of any security of the Company or similar contractual rights granted by the Company. The authorized Common Shares, Company preferred shares and other outstanding securities conform in all material respects to all statements relating thereto contained in the Registration Statement, the Pricing Disclosure Package and the Prospectus. The offers and sales of the outstanding Common Shares were at all relevant times either registered under the Securities Act and the applicable state securities or "blue sky" laws or, based in part on the representations and warranties of the purchasers of such shares, exempt from such registration requirements.

(ii) Securities Sold Pursuant to this Agreement. The Public Securities and Representative's Securities have been duly authorized for issuance and sale and, when issued and paid for, will be validly issued, fully paid and non-assessable; the holders thereof are not and will not be subject to personal liability by reason of being such holders; the Public Securities and Representative's Securities are not and will not be subject to the preemptive rights of any holders of any security of the Company or similar contractual rights granted by the Company; and all corporate action required to be taken for the authorization, offer, issuance and sale of the Public Securities and Representative's Securities has been duly and validly taken. The Warrant Shares and the Common Shares underlying the Representative's Warrants have been duly authorized and reserved for issuance by all necessary corporate action on the part of the Company and when paid for, if applicable, and issued in accordance with the Warrants or Representative's Warrants, as applicable, such Warrant Shares or Common Shares underlying the Representative's Warrants will be validly issued, fully paid and non-assessable; the holders of the Public Securities and Representative's Securities are not and will not be subject to personal liability by reason of being such holders; and such Shares or Warrant Shares are not and will not be subject to the preemptive rights of any holders of any security of the Company or similar contractual rights granted by the Company or similar contractual rights granted by the Company. The Public Securities conform in all material respects to all statements with respect thereto contained in the Registration Statement, the Pricing Disclosure Package and the Prospectus.

( k ) Registration Rights of Third Parties. Except as set forth or incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus, no holders of any securities of the Company or any rights exercisable for or convertible or exchangeable into securities of the Company have the right to require the Company to register any such securities of the Company under the Securities Act or to include any such securities in a registration statement to be filed by the Company (except for any such rights that have been waived or with respect to securities covered by any effective registration statement).

( 1 ) Validity and Binding Effect of Agreements. This Agreement, the Warrant Agent Agreement between the Company and VStock Transfer LLC and the Representative's Warrant Agreement, each has been duly and validly authorized by the Company, and, when executed and delivered, will constitute, the valid and binding agreement of the Company, enforceable against the Company in accordance with its respective terms, except: (i) as such enforceability may be limited by bankruptcy, insolvency, reorganization, fraudulent conveyance, fraudulent transfer, moratorium or similar laws affecting creditors' rights generally; (ii) as enforceability of any indemnification or contribution provision may be limited under the federal and state securities laws; and (iii) that the remedy of specific performance and injunctive and other forms of equitable relief may be subject to the equitable defenses and to the discretion of the court before which any proceeding therefor may be brought.

( m ) No Conflicts, etc. The execution, delivery and performance by the Company of this Agreement and all ancillary documents, the consummation by the Company of the transactions herein and therein contemplated and the compliance by the Company with the terms hereof and thereof do not and will not, with or without the giving of notice or the lapse of time or both: (i) result in a material breach of, or conflict with any of the terms and provisions of, or constitute a material default under, or result in the creation, modification, termination or imposition of any material lien, charge or encumbrance upon any property or assets of the Company pursuant to the terms of any agreement or instrument to which the Company is a party; (ii) result in any violation of the provisions of the Company's articles of incorporation (as the same may be amended or restated from time to time, the "Charter") or the by-laws of the Company (as the same may be amended or restated from time to time, the "Bylaws"); or (iii) violate any existing law, rule, regulation, judgment, order or decree of any Governmental Entity applicable to the company as of the date hereof, except in the case of clauses (i) and (iii) above for any such breaches, conflicts or violations which would not reasonably be expected to result in a Material Adverse Change.

( n ) Regulatory. Except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus or as would not reasonably be expected to result, individually or in the aggregate, in a Material Adverse Change: (i) the Company has not received any FDA Form 483 written notice of adverse finding, warning letter or other correspondence or written notice from the FDA or any other Governmental Entity alleging or asserting noncompliance with any Applicable Laws (as defined in clause (ii) below) or Authorizations (as defined in clause (iii) below); (ii) the Company is and has been in material compliance with statutes, laws, ordinances, rules and regulations applicable to the Company, including, without limitation, all statutes, laws, ordinances, rules and regulations for the ownership, testing, development, manufacture, packaging, processing, use, distribution, marketing, labeling, promotion, sale, offer for sale, storage, import, export or disposal of any product manufactured or distributed by the Company, including without limitation, the Federal Food, Drug, and Cosmetic Act, 21 U.S.C. § 301, et seq., similar laws of other Governmental Entities and the regulations promulgated pursuant to such laws (collectively, "Applicable Laws"); (iii) the Company possesses all material licenses, certificates, approvals, clearances, consents, authorizations, qualifications, registrations, permits, and supplements or amendments thereto required by any such Applicable Laws and/or to carry on its businesses as now conducted ("Authorizations") and such Authorizations are valid and in full force and effect and the Company is not in violation of any term of any such Authorizations; (iv) the Company has not received written notice of any claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action from any Governmental Entity or third party alleging that any product, operation or activity is in violation of any Applicable Laws or Authorizations or has any knowledge that any such Governmental Entity or third party is considering any such claim, litigation, arbitration, action, suit, investigation or proceeding, nor, to the Company's knowledge, has there been any material noncompliance with or violation of any Applicable Laws by the Company that could reasonably be expected to require the issuance of any such communication or result in an investigation, corrective action, or enforcement action by FDA or similar Governmental Entity; (v) the Company has not received written notice that any Governmental Entity has taken, is taking or intends to take action to limit, suspend, modify or revoke any Authorizations or has any knowledge that any such Governmental Entity has threatened or is considering such action; (vi) the Company has filed, obtained, maintained or submitted all reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments as required by any Applicable Laws or Authorizations and that all such reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments were, in all material respects, complete, correct and not misleading on the date filed (or were corrected or supplemented by a subsequent submission); and (vii) the Company has not, either voluntarily or involuntarily, initiated, conducted or issued, or caused to be initiated, conducted or issued, any recall, market withdrawal or replacement, safety alert, post-sale warning, "dear doctor" letter, or other notice or action relating to the alleged lack of safety or efficacy of any product or any alleged product defect or violation and, to the Company's knowledge, no third party has initiated, conducted or intends to initiate or conduct such notice or action. Neither the Company nor, to the Company's knowledge, any of its directors, officers, employees or agents (in their capacities as such) has been convicted of any crime under any Applicable Laws or has been the subject of an FDA debarment proceeding. The Company has not been or is now subject to FDA's Application Integrity Policy. To the Company's knowledge, neither the Company, nor any of its directors, officers, employees or agents (in their capacities as such), has made, or caused the making of, any false statements on, or material omissions from, any other records or documentation prepared or maintained to comply with the requirements of the FDA or any other Governmental Entity. Neither the Company nor, to the Company's knowledge, any of its directors, officers, employees or agents (in their capacities as such), have with respect to each of the following statutes, or regulations promulgated thereto, as applicable: (i) engaged in activities under 42 U.S.C. §§ 1320a-7b or 1395nn; (ii) knowingly engaged in any activities under 42 U.S.C. § 1320a-7b or the Federal False Claims Act, 31 U.S.C. § 3729; or (iii) knowingly and willfully engaged in any activities under 42 U.S.C. § 1320a-7b, which are prohibited, cause for civil penalties, or mandatory or permissive exclusion from Medicare, Medicaid, or any other State Health Care Program or Federal Health Care Program. The Company has not received any written notices or statements from the FDA, non-U.S. counterparts thereof or any other governmental agency or authority imposing, requiring, requesting or suggesting a clinical hold, termination, suspension or material modification for or of any clinical studies that are described in the Registration Statement, the Pricing Disclosure Package and the Prospectus or the results of which are referred to in the Registration Statement, the Pricing Disclosure Package and the Prospectus.

( o ) No Defaults; Violations. No material default exists in the due performance and observance of any term, covenant or condition of any material license, contract, indenture, mortgage, deed of trust, note, loan or credit agreement, or any other agreement or instrument evidencing an obligation for borrowed money, or any other material agreement or instrument to which the Company is a party or by which the Company may be bound or to which any of the properties or assets of the Company is subject. The Company is not (i) in violation of any term or provision of its Charter or Bylaws, or (ii) except as would not reasonably be expected to result, individually or in the aggregate, in a Material Adverse Change, in violation of any franchise, license, permit, applicable law, rule, regulation, judgment or decree of any Governmental Entity applicable to the Company.

(p) Corporate Power; Licenses; Consents.

(i) Conduct of Business. Except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, the Company has all requisite corporate power and authority, and has all necessary authorizations, approvals, orders, licenses, certificates and permits of and from all governmental regulatory officials and bodies that it needs as of the date hereof to conduct its business purpose as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus.

( i i ) Transactions Contemplated Herein. The Company has all corporate power and authority to enter into this Agreement and to carry out the provisions and conditions hereof, and all consents, authorizations, approvals and orders required in connection therewith have been obtained. No consent, authorization or order of, and no filing with, any court, government agency or other body is required for the valid issuance, sale and delivery of the Public Securities and the consummation of the transactions and agreements contemplated by this Agreement and as contemplated by the Registration Statement, the Pricing Disclosure Package and the Prospectus, except with respect to applicable federal and state securities laws and the rules and regulations of the Financial Industry Regulatory Authority, Inc. (“FINRA”) and clearance by the Exchange relating to the Company’s listing application for the additional listing of the Shares, and except with respect to such consent, authorization, order or filing that would not reasonably be expected to have a Material Adverse Change.

( q ) Litigation; Governmental Proceedings. There is no material action, suit, proceeding, inquiry, arbitration, investigation, litigation or governmental proceeding pending or, to the Company’s knowledge, threatened against, or involving the Company or, to the Company’s knowledge, any executive officer or director which has not been disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus or in connection with the Company’s listing application for the additional listing of the Shares on the Exchange.

(r) Insurance. The Company carries or is entitled to the benefits of insurance, with, to the Company’s knowledge, reputable insurers, and in such amounts and covering such risks which the Company believes are reasonably adequate, and all such insurance is in full force and effect. The Company has no reason to believe that it will not be able (i) to renew its existing insurance coverage as and when such policies expire or (ii) to obtain comparable coverage from similar institutions as may be necessary or appropriate to conduct its business as now conducted and at a cost that would not reasonably be expected to result in a Material Adverse Change.

(s) Transactions Affecting Disclosure to FINRA.

( i ) Finder’s Fees. Except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, there are no claims, payments, arrangements, agreements or understandings relating to the payment of a finder’s, consulting or origination fee by the Company or any executive officer or director of the Company (each, an, “Insider”) with respect to the sale of the Public Securities hereunder or any other arrangements, agreements or understandings of the Company or, to the Company’s knowledge, any of its stockholders that may affect the Underwriters’ compensation, as determined by FINRA.

( i i ) Payments Within Six (6) Months. Except as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, the Company has not made any direct or indirect payments (in cash, securities or otherwise) to: (i) any person, as a finder’s fee, consulting fee or otherwise, in consideration of such person raising capital for the Company or introducing to the Company persons who raised or provided capital to the Company; (ii) any FINRA member; or (iii) any person or entity that has any direct or indirect affiliation or association with any FINRA member, within the six (6) months prior to the date hereof, other than the payment to the Underwriters as provided hereunder in connection with the Offering.

(iii) Use of Proceeds. None of the net proceeds of the Offering will be paid by the Company to any participating FINRA member or its affiliates, except as specifically authorized herein.

(iv) FINRA Affiliation. To the Company's knowledge, there is no (i) officer or director of the Company, (ii) beneficial owner of 5% or more of any class of the Company's securities or (iii) beneficial owner of the Company's unregistered equity securities which were acquired during the 180-day period immediately preceding the filing of the Registration Statement that, in each such case, is an affiliate or associated person of a FINRA member participating in the Offering (as determined in accordance with the rules and regulations of FINRA).

(v) Information. To the Company's knowledge, all information provided by the Company's officers and directors in their FINRA Questionnaires to Representative Counsel specifically for use by Representative Counsel in connection with its Public Offering System filings (and related disclosure) with FINRA is true, correct and complete in all material respects.

(t) Foreign Corrupt Practices Act. Neither the Company nor, to the Company's knowledge, any director, officer, agent, employee or affiliate of the Company (acting in such capacity) or any other person acting on behalf of the Company (acting in such capacity), has, directly or indirectly, given or agreed to give any money, gift or similar benefit (other than legal price concessions to customers in the ordinary course of business) to any customer, supplier, employee or agent of a customer or supplier, or official or employee of any governmental agency or instrumentality of any government (domestic or foreign) or any political party or candidate for office (domestic or foreign) or other person who was, is, or may be in a position to help or hinder the business of the Company (or assist it in connection with any actual or proposed transaction) that (i) might subject the Company to any damage or penalty in any civil, criminal or governmental litigation or proceeding, (ii) if not given in the past, might reasonably be expected to have had a Material Adverse Change or (iii) if not continued in the future, might adversely affect the assets, business, operations or prospects of the Company. The Company has taken reasonable steps to ensure that its accounting controls and procedures are sufficient to cause the Company to comply in all material respects with the Foreign Corrupt Practices Act of 1977, as amended.

(u) Compliance with OFAC. Neither the Company nor, to the Company's knowledge, any director, officer, agent, employee or affiliate of the Company (acting in such capacity) or any other person acting on behalf of the Company (acting in such capacity), is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Department of the Treasury ("OFAC").

(v) Money Laundering Laws. The operations of the Company are and have been conducted at all times in compliance in all material respects with applicable financial recordkeeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, the money laundering statutes of all applicable jurisdictions, the rules and regulations thereunder and any related or similar rules, regulations or guidelines, issued, administered or enforced by any Governmental Entity (collectively, the "Money Laundering Laws"); and no action, suit or proceeding by or before any Governmental Entity involving the Company with respect to the Money Laundering Laws is pending or, to the knowledge of the Company, threatened.

(w) Officers' Certificate. Any certificate signed by any duly authorized officer of the Company and delivered to you or to Representative Counsel shall be deemed a representation and warranty by the Company to the Underwriters as to the matters covered thereby.

(x) Related Party Transactions. There are no business relationships or related party transactions involving the Company or any other person required to be described in the Registration Statement, the Pricing Disclosure Package and the Prospectus that have not been described as required.

(y) Board of Directors. The qualifications of the persons serving as board members and the overall composition of the board comply with the Exchange Act, the Exchange Act Regulations, the Sarbanes-Oxley Act of 2002 and the rules promulgated thereunder (the "Sarbanes-Oxley Act") applicable to the Company and the listing rules of the Exchange. At least one member of the Audit Committee of the Board of Directors of the Company qualifies as an "audit committee financial expert," as such term is defined under Regulation S-K and the listing rules of the Exchange.

(z) Sarbanes-Oxley Compliance.

(i) Disclosure Controls. The Company has developed and currently maintains disclosure controls and procedures that will comply with Rule 13a-15 or 15d-15 under the Exchange Act Regulations applicable to it, and such controls and procedures are effective to ensure that all material information concerning the Company will be made known on a timely basis to the individuals responsible for the preparation of the Company's Exchange Act filings and other public disclosure documents.

(ii) Compliance. The Company is, or at the Applicable Time and on the Closing Date will be, in material compliance with the provisions of the Sarbanes-Oxley Act applicable to it, and has implemented or will implement such programs and taken reasonable steps to ensure the Company's future compliance (not later than the relevant statutory and regulatory deadlines therefor) with all of the material provisions of the Sarbanes-Oxley Act.

(a) Accounting Controls. The Company maintains systems of "internal control over financial reporting" (as defined under Rules 13a-15 and 15d-15 under the Exchange Act Regulations) that comply in all material respects with the requirements of the Exchange Act and have been designed by, or under the supervision of, its principal executive and principal financial officers, or persons performing similar functions, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP, including, but not limited to, internal accounting controls sufficient to provide reasonable assurance that (i) transactions are executed in accordance with management's general or specific authorizations; (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP and to maintain asset accountability; (iii) access to assets is permitted only in accordance with management's general or specific authorization; and (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences. Except as disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus, the Company is not aware of any material weaknesses in its internal controls. The Auditors and the Audit Committee of the Board of Directors of the Company have been advised of: (i) all significant deficiencies and material weaknesses, if any, in the design or operation of internal controls over financial reporting which are known to the Company's management and that have adversely affected or are reasonably likely to adversely affect the Company's ability to record, process, summarize and report financial information; and (ii) any fraud, if any, known to the Company's management, whether or not material, that involves management or other employees who have a significant role in the Company's internal controls over financial reporting.

(b) No Investment Company Status. The Company is not and, after giving effect to the Offering and the application of the proceeds thereof as described in the Registration Statement, the Pricing Disclosure Package and the Prospectus, will not be, required to register as an "investment company," as defined in the Investment Company Act of 1940, as amended.

(c) No Labor Disputes. No labor dispute with the employees of the Company exists or, to the knowledge of the Company, is imminent.

(d) Intellectual Property Rights. To the Company's knowledge, the Company has, or can acquire on reasonable terms, ownership of and/or license to, or otherwise has the right to use, all inventions, know-how (including trade secrets and other unpatented and/or unpatentable proprietary or confidential information, systems or procedures), patents and patent rights trademarks, service marks and trade names, copyrights, (collectively "Intellectual Property") material to carrying on its businesses as described in the Pricing Prospectus. The Company has not received any correspondence relating to any Intellectual Property, including notice of: (A) infringement or misappropriation of, or conflict with, any Intellectual Property of a third party; (B) asserted rights of others with respect to any Intellectual Property of the Company; (C) assertions that any Intellectual Property of the Company is invalid or otherwise inadequate to protect the interest of the Company, that in each case (if the subject of any unfavorable decision, ruling or finding), individually or in the aggregate, would have or would reasonably be expected to have a Material Adverse Change. There are no third parties who have been able to establish any material rights to any Intellectual Property, except for the retained rights of the owners or licensors of any Intellectual Property that is licensed to the Company. There is no pending or, to the Company's knowledge, threatened action, suit, proceeding or claim by others: (A) challenging the validity, enforceability or scope of any Intellectual Property of the Company in any material respect or (B) challenging the Company's rights in or to any Intellectual Property in any material respect or (C) that the Company materially infringes, misappropriates or otherwise violates or conflicts with any Intellectual Property or other proprietary rights of others. The Company has complied in all material respects with the terms of each agreement described in the Registration Statement, Pricing Disclosure Package or Prospectus pursuant to which any Intellectual Property is licensed to the Company, and all such agreements related to products currently made or sold by the Company, or to product candidates currently under development, are in full force and effect. All patents issued in the name of, or assigned to, the Company, and all patent applications made by or on behalf of the Company (collectively, the "Company Patents") have been duly and properly filed, except for such failures to file as would reasonably be expected to result in a Material Adverse Change. The Company is not aware of any material information that was required to be disclosed to the United States Patent and Trademark Office (the "PTO") but that was not disclosed to the PTO with respect to any issued Company Patent, or that is required to be disclosed and has not yet been disclosed in any pending application in the Company Patents and that would preclude the grant of a patent on such application. To the Company's knowledge, the Company is the sole owner of the Company Patents.

(ee) Taxes. The Company has filed all returns (as hereinafter defined) required to be filed with taxing authorities prior to the date hereof or has duly obtained extensions of time for the filing thereof. The Company has paid all taxes (as hereinafter defined) shown as due on such returns that were filed and has paid all taxes imposed on or assessed against the Company, except (i) such taxes the Company is challenging in good faith and (ii) for such exceptions as could not reasonably be expected, individually or in the aggregate, to have a Material Adverse Change. The provisions for taxes payable, if any, shown on the financial statements filed with or as part of the Registration Statement are sufficient for all accrued and unpaid taxes, whether or not disputed, and for all periods to and including the dates of such consolidated financial statements. Except as disclosed in writing to the Underwriters or as would not reasonably be expected to result in a Material Adverse Change, (i) no issues have been raised (and are currently pending) by any taxing authority in connection with any of the returns or taxes asserted as due from the Company, and (ii) no waivers of statutes of limitation with respect to the returns or collection of taxes have been given by or requested from the Company. The term “taxes” mean all federal, state, local, foreign and other net income, gross income, gross receipts, sales, use, ad valorem, transfer, franchise, profits, license, lease, service, service use, withholding, payroll, employment, excise, severance, stamp, occupation, premium, property, windfall profits, customs, duties or other taxes, fees, assessments or charges of any kind whatever, together with any interest and any penalties, additions to tax or additional amounts with respect thereto. The term “returns” means all returns, declarations, reports, statements and other documents required to be filed in respect to taxes.

(ff) Employee Benefit Laws. The operations of the Company and its subsidiaries are and have been conducted at all times in material compliance with the Employee Retirement Income Security Act of 1974, as amended, the rules and regulations thereunder and any related or similar rules, regulations or guidelines, issued, administered or enforced by any governmental agency (collectively, the “Employee Benefit Laws”) and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or its subsidiaries with respect to the Employee Benefit Laws is pending or, to the knowledge of the Company, threatened.

(gg) Ineligible Issuer. At the time of filing the Registration Statement and any post-effective amendment thereto, at the time of effectiveness of the Registration Statement and any amendment thereto, at the earliest time thereafter that the Company or another offering participant made a bona fide offer (within the meaning of Rule 164(h)(2) of the Securities Act Regulations) of the Public Securities and at the date hereof, the Company was not and is not an “ineligible issuer,” as defined in Rule 405, without taking account of any determination by the Commission pursuant to Rule 405 that it is not necessary that the Company be considered an ineligible issuer.

( h h ) Industry Data. The statistical and market-related data included in each of the Registration Statement, the Pricing Disclosure Package and the Prospectus are based on or derived from sources that the Company reasonably and in good faith believes are reliable and accurate or represent the Company’s good faith estimates that are made on the basis of data derived from such sources.

( i i ) Forward-Looking Statements. No forward-looking statement (within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act) contained in the Registration Statement, the Pricing Disclosure Package or the Prospectus has been made or reaffirmed without a reasonable basis or has been disclosed other than in good faith.

( j j ) Margin Securities. The Company owns no “margin securities” as that term is defined in Regulation U of the Board of Governors of the Federal Reserve System (the “Federal Reserve Board”), and none of the proceeds of Offering will be used, directly or indirectly, for the purpose of purchasing or carrying any margin security, for the purpose of reducing or retiring any indebtedness which was originally incurred to purchase or carry any margin security or for any other purpose which might cause any of the Common Shares to be considered a “purpose credit” within the meanings of Regulation T, U or X of the Federal Reserve Board.

( k k ) Integration. Neither the Company, nor any of its affiliates, nor any person acting on its or their behalf has, directly or indirectly, made any offers or sales of any security or solicited any offers to buy any security, under circumstances that would cause the Offering to be integrated with prior offerings by the Company for purposes of the Securities Act that would require the registration of any such securities under the Securities Act.



(11) Confidentiality and Non-Competition. To the Company's knowledge, no director, officer, key employee or consultant of the Company is subject to any confidentiality, non-disclosure, non-competition agreement or non-solicitation agreement with any employer (other than the Company or any subsidiary thereof) or prior employer that could reasonably be expected to materially affect his ability to be and act in his respective capacity of the Company or reasonably be expected to result in a Material Adverse Change.

3. Covenants of the Company. The Company covenants and agrees as follows:

(a) Amendments to Registration Statement. The Company shall deliver to the Representative, prior to filing, any amendment or supplement to the Registration Statement or Prospectus proposed to be filed after the Effective Date and not file any such amendment or supplement to which the Representative shall reasonably object in writing; provided however, that this Section 3(a) shall not be applicable with respect to any supplements to the Registration Statement filed solely for the purpose of supplementing the Registration Statement or Prospectus with a report filed with the Commission by the Company pursuant to the Exchange Act.

(b) Federal Securities Laws.

(i) Compliance. The Company shall comply with the requirements of Rule 430A of the Securities Act Regulations, and will notify the Representative promptly, and confirm the notice in writing, (i) when any amendment or supplement to the Prospectus shall have been filed; (ii) of the receipt of any comments from the Commission related to the Prospectus or Offering; (iii) of any request by the Commission for any amendment or supplement to the Prospectus or for additional information; (iv) of the issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement or any post-effective amendment or of any order preventing or suspending the use of any Preliminary Prospectus or the Prospectus, or of the suspension of the qualification of the Public Securities for offering or sale in any jurisdiction, or of the initiation or, to the Company's knowledge, threatening, of any proceedings for any of such purposes or of any examination pursuant to Section 8(d) or 8(e) of the Securities Act concerning the Registration Statement and (v) if the Company becomes the subject of a proceeding under Section 8A of the Securities Act in connection with the Offering of the Public Securities. The Company shall effect all filings required under Rule 424(b) of the Securities Act Regulations, in the manner and within the time period required by Rule 424(b) (without reliance on Rule 424(b)(8)), and shall take such steps as it deems necessary to ascertain promptly whether the form of prospectus transmitted for filing under Rule 424(b) was received for filing by the Commission and, in the event that it was not, it will promptly file such prospectus. The Company shall use its best efforts to prevent the issuance of any stop order, prevention or suspension and, if any such order is issued, to obtain the lifting thereof at the earliest possible moment.

( i i ) Free Writing Prospectuses. The Company agrees that, unless it obtains the prior written consent of the Representative, it shall not make any offer relating to the Public Securities that would constitute an Issuer Free Writing Prospectus or that would otherwise constitute a "free writing prospectus," or a portion thereof, required to be filed by the Company with the Commission or retained by the Company under Rule 433; provided that the Representative shall be deemed to have consented to each Issuer Free Writing Prospectus and any "road show that is a written communication" within the meaning of Rule 433(d)(8)(i) that is set forth on Schedule I. The Company represents that it has treated or agrees that it will treat each such free writing prospectus consented to, or deemed consented to, by the Underwriters as an "issuer free writing prospectus," as defined in Rule 433, and that it has complied and will comply with the applicable requirements of Rule 433 with respect thereto, including timely filing with the Commission where required, legending and record keeping. If at any time following issuance of an Issuer Free Writing Prospectus there occurred or occurs an event or development as a result of which such Issuer Free Writing Prospectus conflicted or would conflict with the information contained in the Registration Statement or included or would include an untrue statement of a material fact or omitted or would omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances existing at that subsequent time, not misleading, the Company will promptly notify the Underwriters and will promptly amend or supplement, at its own expense, such Issuer Free Writing Prospectus to eliminate or correct such conflict, untrue statement or omission.

( c ) Delivery to the Underwriters of Prospectuses. The Company has delivered or made available or will deliver or make available to each Underwriter, without charge, as many copies of each Preliminary Prospectus as such Underwriter reasonably requested, and the Company hereby consents to the use of such copies for purposes permitted by the Securities Act. The Company will furnish to each Underwriter, without charge, during the period when a prospectus relating to the Public Securities is (or, but for the exception afforded by Rule 172, would be) required to be delivered under the Securities Act, such number of copies of the Prospectus (as amended or supplemented) as such Underwriter may reasonably request. The Prospectus and any amendments or supplements thereto furnished to the Underwriters will be identical to the electronically transmitted copies thereof filed with the Commission pursuant to EDGAR, except to the extent permitted by Regulation S-T.

(d) Effectiveness and Events Requiring Notice to the Representative. The Company shall, except to the extent the Company participates in a merger or other business combination transaction, use its commercially reasonable efforts to cause the Registration Statement to remain effective (or, to the extent that the Company is eligible to use Form S-3, to file a new registration statement pursuant to Rule 415(a)(5)-(6) to maintain the registration of such shares in the timeframe set forth by such rule) with a current prospectus through and including the expiration date of the Warrants (or the date all Warrants have been exercised or duly called, if earlier). The Company shall notify the Representative immediately and confirm the notice in writing: (i) of the effectiveness of the Registration Statement and any amendment thereto; (ii) of the issuance by the Commission of any stop order or of the initiation, or to the Company's knowledge, the threatening, of any proceeding for that purpose; (iii) of the issuance by any state securities commission of any proceedings for the suspension of the qualification of the Public Securities for offering or sale in any jurisdiction or of the initiation, or to the Company's knowledge, the threatening, of any proceeding for that purpose; (iv) of the mailing and delivery to the Commission for filing of any amendment or supplement to the Prospectus; (v) of the receipt of any comments or request for any additional information from the Commission related to the Prospectus; and (vi) of the happening of any event during the period described in this Section 3(d) that, in the judgment of the Company, makes any statement of a material fact made in the Registration Statement, the Pricing Disclosure Package or the Prospectus untrue or that requires the making of any changes in (a) the Registration Statement in order to make the statements therein not misleading, or (b) in the Pricing Disclosure Package or the Prospectus in order to make the statements therein, in light of the circumstances under which they were made, not misleading. If the Commission or any state securities commission shall enter a stop order or suspend such qualification at any time, the Company shall use its commercially reasonable efforts to obtain promptly the lifting of such order.

(e) Listing. The Company shall use its commercially reasonable efforts to maintain the listing of the Common Shares and, upon issuance, the Warrant Shares on the Exchange for until the date on which no Warrants are outstanding.

(f) Payment of Expenses. The Company hereby agrees to pay on each of the Closing Date, all expenses incident to the performance of the obligations of the Company under this Agreement, including, but not limited to: (a) all filing fees and communication expenses relating to the registration of the securities to be sold in the Offering with the Commission; (b) all actual Public Offering Filing System filing fees associated with the review of the Offering by FINRA; (c) all fees and expenses relating to the listing of the Common Shares and Warrant Shares on the Exchange; (d) all fees, expenses and disbursements relating to the registration or qualification of the Public Securities under the "blue sky" securities laws of such states and other jurisdictions as the Representative may reasonably designate (including, without limitation, all filing and registration fees, and the reasonable fees and disbursements of "blue sky" counsel, which will be Representative Counsel, it being agreed that such fees and expenses will be limited to a payment of \$15,000 to such counsel at Closing); (e) the costs of all mailing and printing of the underwriting documents, Registration Statements, Prospectuses and all amendments, supplements and exhibits thereto and as many preliminary and final Prospectuses as the Representative may reasonably deem necessary; (f) the costs of preparing, printing and delivering certificates representing the Public Securities; (g) fees and expenses of the transfer agent or warrant agent for the Common Shares and the Warrants; (h) stock transfer and/or stamp taxes, if any, payable upon the transfer of securities from the Company to the Underwriters; (i) the fees and expenses of the Company's accountants; (j) the fees and expenses of the Company's legal counsel and other agents and representatives; and (k) "road show" expenses and the Underwriters' legal and diligence expenses not to exceed, in the aggregate, \$60,000, of which \$10,000 was previously paid to the Representative Counsel. The Representative may deduct from the net proceeds of the Offering payable to the Company on the Closing Date, the expenses set forth herein to be paid by the Company to the Underwriters, provided, however, that in the event that the Offering is terminated, the Company agrees to reimburse the Underwriters pursuant to Section 8(c) hereof. The Representative agrees to provide invoices or other written documentation of all such expenses to the Company.

(g) Application of Net Proceeds. The Company shall apply the net proceeds from the Offering received by it in a manner consistent with the application thereof described under the caption "Use of Proceeds" in the Prospectus.

(h) Rule 158. The Company will timely file such reports pursuant to the Exchange Act as are necessary in order to make generally available to its security holders as soon as practicable an earnings statement for the purposes of, and to provide to the Underwriters the benefits contemplated by, Rule 158(a) under Section 11(a) of the Securities Act.

(i) Stabilization. Neither the Company nor, to its knowledge, any of its employees, directors or stockholders (without the consent of the Representative) has taken or shall take, directly or indirectly, any action designed to or that has constituted or that might reasonably be expected to cause or result in, under Regulation M of the Exchange Act, or otherwise, stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of the Public Securities.

(j) FINRA. For a period of 90 days from the Closing Date, the Company shall advise the Representative (who shall make an appropriate filing with FINRA) if it is or becomes aware that (i) any officer or director of the Company, (ii) any beneficial owner of 5% or more of any class of the Company's securities or (iii) any beneficial owner of the Company's unregistered equity securities which were acquired during the 180 days immediately preceding the filing of the Registration Statement is or becomes an affiliate or associated person of a FINRA member participating in the Offering (as determined in accordance with the rules and regulations of FINRA).

(k) No Fiduciary Duties. The Company acknowledges and agrees that the Underwriters' responsibility to the Company is solely contractual in nature and that none of the Underwriters or their affiliates or any selling agent shall be deemed to be acting in a fiduciary capacity, or otherwise owes any fiduciary duty to the Company or any of its affiliates in connection with the Offering and the other transactions contemplated by this Agreement.

(l) Reporting Requirements. The Company, during the period when a prospectus relating to the Public Securities is (or, but for the exception afforded by Rule 172, would be) required to be delivered under the Securities Act, will file all documents required to be filed with the Commission pursuant to the Exchange Act within the time periods required by the Exchange Act and Exchange Act Regulations.

(m) OFAC. The Company will not, directly or indirectly, use the proceeds of the Offering hereunder, or lend, contribute or otherwise make available such proceeds to any subsidiary, joint venture partner or other person or entity, for the purpose of financing the activities of any person currently subject to any U.S. sanctions administered by OFAC.

4 . Conditions of Underwriters' Obligations. The obligations of the Underwriters to purchase and pay for the Public Securities, as provided herein, shall be subject to (i) the continuing accuracy of the representations and warranties of the Company as of the date hereof and as of each of the Closing Date and any Option Closing Date; (ii) the accuracy of the statements of officers of the Company made pursuant to the provisions hereof; (iii) the performance by the Company of its obligations hereunder; and (iv) the following conditions:

(a) Regulatory Matters.

( i ) Effectiveness of Registration Statement; Rule 430A Information. The Registration Statement has become effective not later than 5:00 p.m., Eastern time, on the date of this Agreement or such later date and time as shall be consented to in writing by the Representative, and, at each of the Closing Date, no stop order suspending the effectiveness of the Registration Statement or any post-effective amendment thereto has been issued under the Securities Act, no order preventing or suspending the use of any Preliminary Prospectus or the Prospectus has been issued and no proceedings for any of those purposes have been instituted or are pending or, to the Company's knowledge, contemplated by the Commission. The Company has complied with each request (if any) from the Commission for additional information. The Prospectus containing the Rule 430A Information shall have been filed with the Commission in the manner and within the time frame required by Rule 424(b) (without reliance on Rule 424(b)(8)) or a post-effective amendment providing such information shall have been filed with, and declared effective by, the Commission in accordance with the requirements of Rule 430A.

(ii) FINRA Clearance. On or before the Closing Date, the Representative shall have received clearance from FINRA as to the amount of compensation allowable or payable to the Underwriters as described in the Registration Statement.

( i i i ) Exchange Stock Market Clearance. On the Closing Date, the additional listing application for the Shares included in the Units and underlying the Warrants shall have been approved by the Exchange, subject only to official notice of issuance.

(b) Company Counsel Matters.

(i) Closing Date Opinions of Counsel. On the Closing Date and any Option Closing Date, the Representative shall have received the favorable opinions of: (A) Sichenzia Ross Ference Kesner LLP, corporate counsel to the Company, (B) Ropes & Gray LLP, as intellectual property counsel for the Company, and (C) Buchanan Ingersoll & Rooney PC, regulatory counsel to the Company, in each case dated the Closing Date or Option Closing Date, as applicable, and addressed to the Representative, substantially in form and substance reasonably satisfactory to the Representative.

(ii) Reliance. In rendering such opinions, such counsel may rely: (i) as to matters involving the application of laws other than the laws of the United States and jurisdictions in which they are admitted, to the extent such counsel deems proper and to the extent specified in such opinion, if at all, upon an opinion or opinions (in form and substance reasonably satisfactory to the Representative) of other counsel reasonably acceptable to the Representative, familiar with the applicable laws; and (ii) as to matters of fact, to the extent they deem proper, on certificates or other written statements of officers of the Company and officers of departments of various jurisdictions having custody of documents respecting the corporate existence or good standing of the Company, provided that copies of any such statements or certificates shall be delivered to Representative Counsel if requested.

(c) Comfort Letters.

(i) Comfort Letter. At the time this Agreement is executed, the Representative shall have received from the Auditors a cold comfort letter containing statements and information of the type customarily included in accountants' comfort letters with respect to the financial statements and certain financial information contained in the Registration Statement, the Pricing Disclosure Package and the Prospectus, addressed to the Representative and in form and substance satisfactory in all respects to Representative and to the Auditors, dated as of the date of this Agreement.

(ii) Bring-down Comfort Letter. At the Closing Date and any Option Closing Date, the Representative shall have received from the Auditors a letter, dated as of the Closing Date or Option Closing Date, as applicable, to the effect that such Auditor reaffirms the statements made in the letter furnished pursuant to Section 4(c)(i).

(d) Officers' Certificates.

(i) Officers' Certificate. The Company shall have furnished to the Representative a certificate, dated the Closing Date and any Option Closing Date, of its Chief Executive Officer and its Chief Financial Officer stating (not in an individual capacity) that (i) such officers have carefully examined the Registration Statement, the Pricing Disclosure Package, any Issuer Free Writing Prospectus and the Prospectus and, to their knowledge, the Registration Statement and each amendment thereto, as of the Applicable Time and as of the Closing Date or Option Closing Date, as applicable, did not include any untrue statement of a material fact and did not omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading, and the Pricing Disclosure Package, as of the Applicable Time and as of the Closing Date or Option Closing Date, as applicable, any Issuer Free Writing Prospectus as of its date and as of the Closing Date or Option Closing Date, as applicable, the Prospectus and each amendment or supplement thereto, as of the respective date thereof and as of the Closing Date or Option Closing Date, as applicable, did not include any untrue statement of a material fact and did not omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances in which they were made, not misleading, (ii) since the filing of the most recent annual report on Form 10-K for the Company, no event has occurred which should have been set forth in a supplement or amendment to the Registration Statement, the Pricing Disclosure Package or the Prospectus, (iii) to their knowledge after reasonable investigation, as of the Closing Date or Option Closing Date, as applicable, the representations and warranties of the Company in this Agreement are true and correct in all material respects (or, in the case of a relevant representation or warranty that contains a materiality concept, true in all respects) and the Company has complied with all agreements and satisfied all conditions on its part to be performed or satisfied hereunder at or prior to the Closing Date or Option Closing Date, as applicable, and (iv) there has not been, subsequent to the date of the most recent audited financial statements included or incorporated by reference in the Pricing Disclosure Package, any Material Adverse Change in the financial position or results of operations of the Company, or any change or development that, singularly or in the aggregate, would reasonably be expected to involve a Material Adverse Change or a reasonably foreseeable prospective Material Adverse Change, in or affecting the condition (financial or otherwise), results of operations, business, assets or prospects of the Company, except as set forth or incorporated by reference in the Prospectus.

(ii) Secretary's Certificate. At each of the Closing Date or Option Closing Date, as applicable, the Representative shall have received a certificate of the Company signed by the Secretary of the Company, dated the Closing Date, or Option Closing Date, as applicable, certifying: (i) that each of the Charter and Bylaws is true and complete, has not been modified and is in full force and effect; (ii) that the resolutions of the Company's Board of Directors relating to the Offering are in full force and effect and have not been modified; (iii) the good standing of the Company and its subsidiaries; and (iv) as to the incumbency of the officers of the Company. The documents referred to in such certificate shall be attached to such certificate.

(e) No Material Changes. Prior to and on each of the Closing Date or Option Closing Date, as applicable: (i) there shall have been no Material Adverse Change or development involving a reasonably foreseeable prospective Material Adverse Change in the condition or prospects or the business activities, financial or otherwise, of the Company from the latest dates as of which such condition is set forth in the Registration Statement, the Pricing Disclosure Package and the Prospectus; (ii) no action, suit or proceeding, at law or in equity, shall have been pending or threatened against the Company or any Insider before or by any court or federal or state commission, board or other administrative agency wherein an unfavorable decision, ruling or finding would reasonably be expected to result in a Material Adverse Change, except as set forth or incorporated by reference in the Registration Statement, the Pricing Disclosure Package and the Prospectus; (iii) no stop order shall have been issued under the Securities Act and no proceedings therefor shall have been initiated or threatened by the Commission; and (iv) the Registration Statement, the Pricing Disclosure Package and the Prospectus and any amendments or supplements thereto shall contain all material statements which are required to be stated therein in accordance with the Securities Act and the Securities Act Regulations and shall conform in all material respects to the requirements of the Securities Act and the Securities Act Regulations, and neither the Registration Statement, the Pricing Disclosure Package nor the Prospectus nor any amendment or supplement thereto shall 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, in light of the circumstances under which they were made, not misleading.

(f) Additional Documents. At the Closing Date or Option Closing Date, as applicable, Representative Counsel shall have been furnished with such documents and opinions as they may reasonably require for the purpose of enabling Representative Counsel to deliver an opinion to the Underwriters, or in order to evidence the accuracy of any of the representations or warranties, or the fulfillment of any of the conditions, herein contained; and all proceedings taken by the Company in connection with the issuance and sale of the Public Securities as herein contemplated shall be satisfactory in form and substance to the Representative and Representative Counsel.

## 5. Indemnification.

(a) Indemnification of the Underwriters. The Company agrees to indemnify and hold harmless each Underwriter, its affiliates and each person controlling such Underwriter (within the meaning of Section 15 of the Securities Act), and the directors, officers, agents and employees of each Underwriter, its affiliates and each such controlling person (each Underwriter, and each such entity or person hereafter is referred to as an "Indemnified Person") from and against any losses (other than losses of profits), claims, damages, judgments, assessments, costs and other liabilities (collectively, the "Liabilities"), and shall reimburse each Indemnified Person for all fees and expenses (including the reasonable fees and expenses of counsel for the Indemnified Persons, except as otherwise expressly provided in this Agreement) (collectively, the "Expenses") and agrees to advance payment of such Expenses as they are incurred by an Indemnified Person in investigating, preparing, pursuing or defending any actions, whether or not any Indemnified Person is a party thereto, arising out of or based upon any untrue statement or alleged untrue statement of a material fact contained in (i) the Registration Statement, the Pricing Disclosure Package, the Preliminary Prospectus, the Prospectus or in any Issuer Free Writing Prospectus (as from time to time each may be amended and supplemented); (ii) any materials or information provided to investors by, or with the approval of, the Company in connection with the marketing of the Offering, including any "road show" or investor presentations made to investors by the Company (whether in person or electronically); or (iii) any application or other document or written communication (in this Section 5, collectively called "application") executed by the Company or based upon written information furnished by the Company in any jurisdiction in order to qualify the Public Securities under the securities laws thereof or filed with the Commission, any state securities commission or agency, the Exchange or any other national securities exchange; or the omission or alleged omission therefrom of a material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading, unless such statement or omission was made in reliance upon, and in conformity with, the Underwriters' Information. The Company also agrees to reimburse each Indemnified Person for all Expenses as they are incurred in connection with such Indemnified Person's enforcement of his or its rights under this Agreement.

(b) Procedure. Upon receipt by an Indemnified Person of notice of an action against such Indemnified Person with respect to which indemnity may reasonably be expected to be sought under this Agreement, such Indemnified Person shall promptly notify the Company in writing; provided that failure by any Indemnified Person so to notify the Company shall not relieve the Company from any obligation or liability which the Company may have on account of this Section 5 or otherwise to such Indemnified Person, except to the extent the Company is materially prejudiced as a proximate result of such failure. The Company shall have the right to assume the defense of any such action (including the employment of counsel designated by the Company and reasonably satisfactory to the Representative). Any Indemnified Person shall have the right to employ separate counsel in any such action and participate in the defense thereof, but the fees and expenses of such counsel shall be at the expense of such Indemnified Person unless: (i) the Company has failed promptly to assume the defense and employ counsel satisfactory to the Representative for the benefit of the Underwriters and the other Indemnified Persons or (ii) such Indemnified Person shall have been advised that in the opinion of counsel that there is an actual or potential conflict of interest that prevents (or makes it imprudent for) the counsel engaged by the Company for the purpose of representing the Indemnified Person, to represent both such Indemnified Person and any other person represented or proposed to be represented by such counsel. The Company shall not be liable for the fees and expenses of more than one separate counsel (together with local counsel), representing all Indemnified Persons who are parties to such action, which counsel (together with any local counsel) for the Indemnified Persons shall be selected by the Representative. The Company shall not be liable for any settlement of any action effected without its written consent (which shall not be unreasonably withheld). In addition, the Company shall not, without the prior written consent of the Underwriters, settle, compromise or consent to the entry of any judgment in or otherwise seek to terminate any pending or threatened action in respect of which advancement, reimbursement, indemnification or contribution may be sought hereunder (whether or not such Indemnified Person is a party thereto) unless such settlement, compromise, consent or termination (i) includes an unconditional release of each Indemnified Person, acceptable to such Indemnified Party, from all Liabilities arising out of such action for which indemnification or contribution may be sought hereunder and (ii) does not include a statement as to or an admission of fault, culpability or a failure to act, by or on behalf of any Indemnified Person. The advancement, reimbursement, indemnification and contribution obligations of the Company required hereby shall be made by periodic payments of the amount thereof during the course of the investigation or defense, as every Liability and Expense is incurred and is due and payable, and in such amounts as fully satisfy each and every Liability and Expense as it is incurred (and in no event later than 30 days following the date of any invoice therefore).

(c) Indemnification of the Company. Each Underwriter, severally and not jointly, agrees to indemnify and hold harmless the Company, its directors, its officers who signed the Registration Statement and persons who control the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act against any and all Liabilities, but only with respect to untrue statements or omissions, or alleged untrue statements or omissions made in the Registration Statement, any Preliminary Prospectus, the Pricing Disclosure Package or Prospectus or any amendment or supplement thereto, in reliance upon, and in strict conformity with, the Underwriters' Information. In case any action shall be brought against the Company or any other person so indemnified based on any Preliminary Prospectus, the Registration Statement, the Pricing Disclosure Package or Prospectus or any amendment or supplement thereto, and in respect of which indemnity may be sought against any Underwriter, such Underwriter shall have the rights and duties given to the Company, and the Company and each other person so indemnified shall have the rights and duties given to the several Underwriters by the provisions of Section 5(b). The Company agrees promptly to notify the Representative of the commencement of any litigation or proceedings against the Company or any of its officers, directors or any person, if any, who controls the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act, in connection with the issuance and sale of the Public Securities or in connection with the Registration Statement, the Pricing Disclosure Package, the Prospectus or any Issuer Free Writing Prospectus; provided that failure by the Company so to notify the Representative shall not relieve any Underwriter from any obligation or liability which such Underwriter may have on account of this Section 5 or otherwise to the Company, except to the extent such Underwriter is materially prejudiced as a proximate result of such failure.

( d ) Contribution. In the event that a court of competent jurisdiction makes a finding that indemnity is unavailable to an Indemnified Person (other than in accordance with the terms hereof), the Company shall contribute to the Liabilities and Expenses paid or payable by such Indemnified Person in such proportion as is appropriate to reflect (i) the relative benefits to the Company, on the one hand, and to the Underwriters and any other Indemnified Person, on the other hand, of the matters contemplated by this Agreement or (ii) if the allocation provided by the immediately preceding clause is not permitted by applicable law, not only such relative benefits but also the relative fault of the Company, on the one hand, and the Underwriters and any other Indemnified Person, on the other hand, in connection with the matters as to which such Liabilities or Expenses relate, as well as any other relevant equitable considerations; provided that in no event shall the Company contribute less than the amount necessary to ensure that all Indemnified Persons, in the aggregate, are not liable for any Liabilities and Expenses in excess of the amount of commissions actually received by the Underwriters pursuant to this Agreement. The relative fault shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information supplied by the Company on the one hand or the Underwriters on the other and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission. The Company and the Underwriters agree that it would not be just and equitable if contributions pursuant to this subsection (d) were determined by pro rata allocation (even if the Underwriters were treated as one entity for such purpose) or by any other method of allocation which does not take account of the equitable considerations referred to above in this subsection (d). For purposes of this paragraph, the relative benefits to the Company, on the one hand, and to the Underwriters on the other hand, of the matters contemplated by this Agreement shall be deemed to be in the same proportion as: (a) the total value received by the Company in the Offering, whether or not such Offering is consummated, bears to (b) the commissions paid to the Underwriters under this Agreement. Notwithstanding the above, no person guilty of fraudulent misrepresentation within the meaning of Section 11(f) of the Securities Act shall be entitled to contribution from a party who was not guilty of fraudulent misrepresentation.

(e) Limitation. The Company also agrees that no Indemnified Person shall have any liability (whether direct or indirect, in contract or tort or otherwise) to the Company for or in connection with advice or services rendered or to be rendered by any Indemnified Person pursuant to this Agreement, the transactions contemplated thereby or any Indemnified Person's actions or inactions in connection with any such advice, services or transactions, except to the extent that a court of competent jurisdiction has made a finding that Liabilities (and related Expenses) of the Company have resulted exclusively from such Indemnified Person's gross negligence or willful misconduct in connection with any such advice, actions, inactions or services.

(f) Survival. The advancement, reimbursement, indemnity and contribution obligations set forth in this Section 5 shall remain in full force and effect regardless of any termination of, or the completion of any Indemnified Person's services under or in connection with, this Agreement.

6. Default by an Underwriter.

(a) Default Not Exceeding 10% of Units. If any Underwriter or Underwriters shall default in its or their obligations to purchase the Units, and if the number of the Units with respect to which such default relates does not exceed in the aggregate 10% of the number of Units that all Underwriters have agreed to purchase hereunder, then such Units to which the default relates shall be purchased by the non-defaulting Underwriters in proportion to their respective commitments hereunder.

(b) Default Exceeding 10% of Units. In the event that the default addressed in Section 6(a) relates to more than 10% of the Units, the Representative may in its discretion arrange for itself or for another party or parties to purchase such Units to which such default relates on the terms contained herein. If, within one (1) Business Day after such default relating to more than 10% of the Units, the Representative does not arrange for the purchase of such Units, then the Company shall be entitled to a further period of one (1) Business Day within which to procure another party or parties satisfactory to the Representative to purchase said Units on such terms. In the event that neither the Representative nor the Company arrange for the purchase of the Units to which a default relates as provided in this Section 6, this Agreement will automatically be terminated by the Representative or the Company without liability on the part of the Company (except as provided in Sections 3(f) and 5 hereof) or the several Underwriters (except as provided in Section 5 hereof); provided that if any such default occurs with respect to any Option Units, this Agreement will not terminate in respect of the Firm Securities; and provided, further, that nothing herein shall relieve a defaulting Underwriter of its liability, if any, to the other Underwriters and to the Company for damages occasioned by its default hereunder.

(c) Postponement of Closing Date. In the event that the Units to which the default relates are to be purchased by the non-defaulting Underwriters, or are to be purchased by another party or parties as aforesaid, the Representative or the Company shall have the right to postpone the Closing Date for a reasonable period, but not in any event exceeding five (5) Business Days, in order to effect whatever changes may thereby be made necessary in the Registration Statement, the Pricing Disclosure Package or the Prospectus or in any other documents and arrangements, and the Company agrees to file promptly any amendment to the Registration Statement, the Pricing Disclosure Package or the Prospectus that in the opinion of counsel for the Underwriter may thereby be made necessary. The term "Underwriter" as used in this Agreement shall include any party substituted under this Section 6 with like effect as if it had originally been a party to this Agreement with respect to such Securities.

7. Additional Covenants.

(a) Right of First Refusal; Participation Right. If the sale of the Firm Securities pursuant to this Agreement is completed, for a period of 90 days from the Closing Date, the Company grants the Representative the right of first refusal to act as lead managing underwriter or book runner, or as lead placement agent, for any and all future equity, equity-linked or debt (excluding commercial bank debt) offerings during such period, of the Company, or any successor to or any subsidiary of the Company. For a period of twelve months from the Closing Date, if the Company makes any equity, equity-linked or debt (excluding commercial bank debt) offerings, the Representative shall be permitted to participate as a placement agent or underwriter for such offering and receive no less than a 10% level of the economics of the compensation of such offering as reasonably determined by the Company, excluding any sales made pursuant to the Sales Agreement dated April 28, 2016 between the Company and Cowen and Company LLC..

(b) Tail Fees. The Representative shall be entitled to fees set forth in section 6 of the engagement letter between the Company and the Representative dated October 12, 2016 (the "Engagement Letter").

8. Effective Date of this Agreement and Termination Thereof.

( a ) Effective Date. This Agreement shall become effective when both the Company and the Representative have executed the same and delivered counterparts of such signatures to the other party.

( b ) Termination. The Representative shall have the right to terminate this Agreement at any time prior to any Closing Date, (i) if any domestic or international event or act or occurrence has materially disrupted, or in Representative's opinion will in the immediate future materially disrupt, general securities markets in the United States; or (ii) if trading on the New York Stock Exchange or the NASDAQ Stock Market LLC shall have been suspended or materially limited, or minimum or maximum prices for trading shall have been fixed, or maximum ranges for prices for securities shall have been required by FINRA or by order of the Commission or any other government authority having jurisdiction; or (iii) if the United States shall have become involved in a new war or an increase in major hostilities; or (iv) if a banking moratorium has been declared by a New York State or federal authority; or (v) if a moratorium on foreign exchange trading has been declared which materially adversely impacts the United States securities markets; or (vi) if the Company shall have sustained a material loss by fire, flood, accident, hurricane, earthquake, theft, sabotage or other calamity or malicious act which, whether or not such loss shall have been insured, will, in Representative opinion, make it inadvisable to proceed with the delivery of the Units; or (vii) if the Company is in material breach of its representations, warranties or covenants hereunder; or (viii) if the Representative shall have become aware after the date hereof of such a Material Adverse Change in the conditions or prospects of the Company, or such adverse material change in general market conditions, in each case, as in the Representative's judgment would make it impracticable to proceed with the offering, sale and/or delivery of the Public Securities or to enforce contracts made by the Underwriters for the sale of the Public Securities. Section 5 of this Agreement shall survive any termination of this Agreement.

( c ) Expenses. Notwithstanding anything to the contrary in this Agreement, except in the case of a default by the Underwriters pursuant to Section 6(b) above, in the event that this Agreement shall not be carried out for any reason whatsoever, within the time specified herein or any extensions thereof pursuant to the terms herein, the Company shall be obligated to pay to the Underwriters their actual and accountable out-of-pocket expenses related to the transactions contemplated herein then due and payable and upon demand the Company shall pay the full amount thereof to the Representative on behalf of the Underwriters; up to \$50,000 in the aggregate; and provided, however, that such expense cap in no way limits or impairs the indemnification and contribution provisions of this Agreement.

( d ) Indemnification. Notwithstanding any contrary provision contained in this Agreement, any election hereunder or any termination of this Agreement, and whether or not this Agreement is otherwise carried out, the provisions of Section 5 shall remain in full force and effect and shall not be in any way affected by, such election or termination or failure to carry out the terms of this Agreement or any part hereof.

( e ) Representations, Warranties, Agreements to Survive. All representations, warranties and agreements contained in this Agreement or in certificates of officers of the Company submitted pursuant hereto, shall remain operative and in full force and effect regardless of (i) any investigation made by or on behalf of any Underwriter or its affiliates or selling agents, any person controlling any Underwriter, its officers or directors or any person controlling the Company or (ii) delivery of and payment for the Public Securities.

9. Miscellaneous.

( a ) Notices. All communications hereunder, except as herein otherwise specifically provided, shall be in writing and shall be mailed (registered or certified mail, return receipt requested), or personally delivered and shall be deemed given when so delivered or if mailed, three (3) days after such mailing.

If to the Representative:

Dawson James Securities, Inc.  
1 North Federal Highway, 5<sup>th</sup> Floor  
Boca Raton, FL 33432  
Attention: Robert D. Keyser, Jr.



If to the Company:

Tonix Pharmaceuticals Holding Corp.  
509 Madison Avenue, Suite 306  
New York, NY 10022  
Attention: Chief Financial Officer

(b) Headings. The headings contained herein are for the sole purpose of convenience of reference, and shall not in any way limit or affect the meaning or interpretation of any of the terms or provisions of this Agreement.

(c) Amendment. This Agreement may only be amended by a written instrument executed by each of the parties hereto.

(d) Entire Agreement. This Agreement (together with the other agreements and documents being delivered pursuant to or in connection with this Agreement) constitutes the entire agreement of the parties hereto with respect to the subject matter hereof and thereof, and supersedes all prior agreements and understandings of the parties, oral and written, with respect to the subject matter hereof.

(e) Binding Effect. This Agreement shall inure solely to the benefit of and shall be binding upon the Representative, the Underwriters, each Indemnified Person referred to in Section 5, the Company and the controlling persons, directors and officers referred to in Section 5 hereof, and their respective successors, legal representatives, heirs and assigns, and no other person shall have or be construed to have any legal or equitable right, remedy or claim under or in respect of or by virtue of this Agreement or any provisions herein contained. The term "successors and assigns" shall not include a purchaser, in its capacity as such, of securities from any of the Underwriters.

(f) Governing Law; Consent to Jurisdiction; Trial by Jury. This Agreement shall be governed by and construed and enforced in accordance with the laws of the State of New York, without giving effect to conflict of laws principles thereof. The Company hereby agrees that any action, proceeding or claim arising out of, or relating in any way to this Agreement shall be brought and enforced in the New York Supreme Court, County of New York, or in the United States District Court for the Southern District of New York, and irrevocably submits to such jurisdiction, which jurisdiction shall be exclusive. The Company hereby waives any objection to such exclusive jurisdiction and that such courts represent an inconvenient forum. Any such process or summons to be served upon the Company may be served by transmitting a copy thereof by registered or certified mail, return receipt requested, postage prepaid, addressed to it at the address set forth in Section 9(a) hereof. Such mailing shall be deemed personal service and shall be legal and binding upon the Company in any action, proceeding or claim. The Company agrees that the prevailing party(ies) in any such action shall be entitled to recover from the other party(ies) all of its reasonable attorneys' fees and expenses relating to such action or proceeding and/or incurred in connection with the preparation therefor. The Company (on its behalf and, to the extent permitted by applicable law, on behalf of its stockholders and affiliates) and each of the Underwriters hereby irrevocably waives, to the fullest extent permitted by applicable law, any and all right to trial by jury in any legal proceeding arising out of or relating to this Agreement or the transactions contemplated hereby.

(g) Execution in Counterparts. This Agreement may be executed in one or more counterparts, and by the different parties hereto in separate counterparts, each of which shall be deemed to be an original, but all of which taken together shall constitute one and the same agreement, and shall become effective when one or more counterparts has been signed by each of the parties hereto and delivered to each of the other parties hereto. Delivery of a signed counterpart of this Agreement by email/pdf transmission shall constitute valid and sufficient delivery thereof.

(h) Waiver, etc. The failure of any of the parties hereto to at any time enforce any of the provisions of this Agreement shall not be deemed or construed to be a waiver of any such provision, nor to in any way effect the validity of this Agreement or any provision hereof or the right of any of the parties hereto to thereafter enforce each and every provision of this Agreement. No waiver of any breach, non-compliance or non-fulfillment of any of the provisions of this Agreement shall be effective unless set forth in a written instrument executed by the party or parties against whom or which enforcement of such waiver is sought; and no waiver of any such breach, non-compliance or non-fulfillment shall be construed or deemed to be a waiver of any other or subsequent breach, non-compliance or non-fulfillment.

**[Signature Page Follows]**

[Signature Page]

**Tonix Pharmaceuticals Holding Corp. – Underwriting Agreement**

If the foregoing correctly sets forth the understanding between the Underwriters and the Company, please so indicate in the space

Very truly yours,

**Tonix Pharmaceuticals Holding Corp.**

By: /s/ Seth Lederman

Name: Seth Lederman

Title: President and Chief Executive Officer

Confirmed as of the date first written above mentioned,  
on behalf of itself and as Representative of the several  
Underwriters named on Schedule 1 hereto:

**Dawson James Securities, Inc.**

By: /s/ Robert D. Keyser, Jr.

Name: Robert D. Keyser, Jr.

Title: Chief Executive Officer

On behalf of each of the Underwriters

**SCHEDULE 1**

<b>Underwriter</b>	<b>Total Number of Units to be Purchased</b>
Dawson James Securities, Inc.	9,500,000
<b>Total:</b>	9,500,000

## **SCHEDULE 2**

### **Pricing Information**

Number of Firm Shares: 9,500,000

Number of Firm Warrants: 4,750,000

Number of Option Shares: 1,425,000

Number of Option Warrants: 712,500

Shares underlying Warrant: one whole Common Share per Warrant

Exercise price of Warrant per full Common Share: \$0.63

Public Offering Price per Unit (consisting of one Firm Share and 0.5 Firm Warrants): \$0.55

Public Offering Price per Option Share: \$0.549

Public Offering Price per Option Warrant: \$0.001

Underwriting Discount per Unit: \$0.044 (8% per Unit)

Underwriting Discount per Option Share: \$0.04392 (8% per Option Share)

Underwriting Discount per Option Warrant: \$0.00008 (8% per Option Warrant)

**SCHEDULE I**

**Issuer Use Free Writing Prospectuses**

None.

**WARRANT AGENCY AGREEMENT**

WARRANT AGENCY AGREEMENT, dated as of October 26, 2016 (“Agreement”), between Tonix Pharmaceuticals Holding Corp., a Nevada corporation (the “Company”), and VStock Transfer, LLC (the “Warrant Agent”).

**WITNESSETH**

WHEREAS, pursuant to a registered offering by the Company of shares of common stock, par value \$0.001 per share (the “Common Stock”) and warrants to purchase shares of Common Stock (the “Warrants”), pursuant to an effective registration statement on Form S-3 (File No. 333-197824) (the “Registration Statement”), the Company wishes to issue Warrants in book entry form entitling the respective holders of the Warrants (the “Holders”, which term shall include a Holder’s transferees, successors and assigns and “Holder” shall include, if the Warrants are held in “street name”, a Participant (as defined below) or a designee appointed by such Participant) to purchase an aggregate of up to 5,462,500 shares of Common Stock (which includes Warrants to purchase up to 712,500 shares of Common Stock pursuant to an overallotment option granted to the underwriters) upon the terms and subject to the conditions hereinafter set forth (the “Offering”);

WHEREAS, the shares of Common Stock and Warrants to be issued in connection with the Offering shall be immediately separable and will be issued separately, but will be purchased together in the Offering; and

WHEREAS, the Company wishes the Warrant Agent to act on behalf of the Company, and the Warrant Agent is willing so to act, in connection with the issuance, registration, transfer, exchange, exercise and replacement of the Warrants and, in the Warrant Agent’s capacity as the Company’s transfer agent, the delivery of the Warrant Shares.

NOW, THEREFORE, in consideration of the premises and the mutual agreements herein set forth, the parties hereby agree as follows:

Section 1. Certain Definitions. For purposes of this Agreement, the following terms have the meanings indicated:

(a) “Affiliate” has the meaning ascribed to it in Rule 12b-2 under the Securities Exchange Act of 1934, as amended (the “Exchange Act”).

(b) “Business Day” means any day except any Saturday, any Sunday, any day which is a federal legal holiday in the United States or any day on which the Nasdaq Stock Market is authorized or required by law or other governmental action to close.

(c) “Close of Business” on any given date means 5:00 p.m., New York City time, on such date; provided, however, that if such date is not a Business Day it means 5:00 p.m., New York City time, on the next succeeding Business Day.

(e) “Person” means an individual, corporation, association, partnership, limited liability company, joint venture, trust, unincorporated organization, government or political subdivision thereof or governmental agency or other entity.

(j) “Warrant Certificate” means a certificate in substantially the form attached as Exhibit 1 hereto, representing such number of Warrant Shares as is indicated therein, provided that any reference to the delivery of a Warrant Certificate in this Agreement shall include delivery of notice from the Depository or a Participant (each as defined below) of the transfer or exercise of Warrant in the form of a Global Warrant (as defined below).

(k) “Warrant Shares” means the shares of Common Stock underlying the Warrants and issuable upon exercise of the Warrants.

All other capitalized terms used but not otherwise defined herein shall have the meaning ascribed to such terms in the Warrant Certificate.

Section 2. Appointment of Warrant Agent. The Company hereby appoints the Warrant Agent to act as agent for the Company in accordance with the terms and conditions hereof, and the Warrant Agent hereby accepts such appointment. The Company may from time to time appoint a Co-Warrant Agent with the prior consent of the Warrant Agent, such consent to not be unreasonably withheld, delayed or conditioned. The Warrant Agent shall have no duty to supervise, and will in no event be liable for the acts or omissions of, any co-Warrant Agent.

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### Section 3. Global Warrants.

(a) The Warrants shall be issuable in book entry form (the “Global Warrants”). All of the Warrants shall initially be represented by one or more Global Warrants deposited with the Warrant Agent and registered in the name of Cede & Co., a nominee of The Depository Trust Company (the “Depository”), or as otherwise directed by the Depository. Ownership of beneficial interests in the Warrants shall be shown on, and the transfer of such ownership shall be effected through, records maintained by (i) the Depository or its nominee for each Global Warrant or (ii) institutions that have accounts with the Depository (such institution, with respect to a Warrant in its account, a “Participant”).

(b) If the Depository subsequently ceases to make its book-entry settlement system available for the Warrants, the Company may instruct the Warrant Agent regarding other arrangements for book-entry settlement. In the event that the Warrants are not eligible for, or it is no longer necessary to have the Warrants available in, book-entry form, the Warrant Agent shall provide written instructions to the Depository to deliver to the Warrant Agent for cancellation each Global Warrant, and the Company shall instruct the Warrant Agent to deliver to each Holder a Warrant Certificate.

(c) A Holder has the right to elect at any time or from time to time a Warrant Exchange (as defined below) pursuant to a Warrant Certificate Request Notice (as defined below). Upon written notice by a Holder to the Warrant Agent for the exchange of some or all of such Holder’s Global Warrants for a Warrant Certificate evidencing the same number of Warrants, which request shall be in the form attached hereto as Annex A (a “Warrant Certificate Request Notice” and the date of delivery of such Warrant Certificate Request Notice by the Holder, the “Warrant Certificate Request Notice Date” and the deemed surrender upon delivery by the Holder of a number of Global Warrants for the same number of Warrants evidenced by a Warrant Certificate, a “Warrant Exchange”), the Warrant Agent shall promptly effect the Warrant Exchange and shall promptly issue and deliver to the Holder a Warrant Certificate for such number of Warrants in the name set forth in the Warrant Certificate Request Notice. Such Warrant Certificate shall be dated the original issue date of the Warrants, shall be manually executed by an authorized signatory of the Company, shall be in the form attached hereto as Exhibit 1, and shall be reasonably acceptable in all respects to such Holder. In connection with a Warrant Exchange, the Company agrees to deliver, or to direct the Warrant Agent to deliver, the Warrant Certificate to the Holder within three (3) Business Days of the Warrant Certificate Request Notice pursuant to the delivery instructions in the Warrant Certificate Request Notice (“Warrant Certificate Delivery Date”). If the Company fails for any reason to deliver to the Holder the Warrant Certificate subject to the Warrant Certificate Request Notice by the Warrant Certificate Delivery Date, the Company shall pay to the Holder, in cash, as liquidated damages and not as a penalty, for each \$1,000 of Warrant Shares evidenced by such Warrant Certificate (based on the VWAP (as defined in the Warrants) of the Common Stock on the Warrant Certificate Request Notice Date), \$10 per Business Day for each Business Day after such Warrant Certificate Delivery Date until such Warrant Certificate is delivered or, prior to delivery of such Warrant Certificate, the Holder rescinds such Warrant Exchange. The Company covenants and agrees that, upon the date of delivery of the Warrant Certificate Request Notice, the Holder shall be deemed to be the holder of the Warrant Certificate and, notwithstanding anything to the contrary set forth herein, the Warrant Certificate shall be deemed for all purposes to contain all of the terms and conditions of the Warrants evidenced by such Warrant Certificate and the terms of this Agreement, other than Sections 3(c) and 9 herein, shall not apply to the Warrants evidenced by the Warrant Certificate. For purposes of this Section 3(c) only, the term “Holder” shall be deemed to be the owner of record of the Warrant.

Section 4. Form of Warrant Certificates. The Warrant Certificate, together with the form of election to purchase Common Stock (“Exercise Notice”) and the form of assignment to be printed on the reverse thereof, shall be in the form of Exhibit 1 hereto.

### Section 5. Countersignature and Registration.

(a) The Warrant Certificates shall be executed on behalf of the Company by its Chief Executive Officer, Chief Financial Officer or Vice President, either manually or by facsimile signature. The Warrant Certificates shall be countersigned by the Warrant Agent either manually or by facsimile signature and shall not be valid for any purpose unless so countersigned. In case any officer of the Company who shall have signed any of the Warrant Certificates shall cease to be such officer of the Company before countersignature by the Warrant Agent and issuance and delivery by the Company, such Warrant Certificates, nevertheless, may be countersigned by the Warrant Agent, issued and delivered with the same force and effect as though the person who signed such Warrant Certificate had not ceased to be such officer of the Company; and any Warrant Certificate may be signed on behalf of the Company by any person who, at the actual date of the execution of such Warrant Certificate, shall be a proper officer of the Company to sign such Warrant Certificate, although at the date of the execution of this Warrant Agreement any such person was not such an officer.

(b) The Warrant Agent will keep or cause to be kept, at one of its offices, or at the office of one of its agents, books for registration and transfer of the Warrant Certificates issued hereunder. Such books shall show the names and addresses of the respective Holders of the Warrant Certificates, the number of warrants evidenced on the face of each of such Warrant Certificate and the date of each of such Warrant Certificate. The Warrant Agent will create a special account for the issuance of Warrant Certificates.

Section 6. Transfer, Split Up, Combination and Exchange of Warrant Certificates; Mutilated, Destroyed, Lost or Stolen Warrant Certificates.

(a) With respect to the Global Warrant, subject to the provisions of the Warrant Certificate and the last sentence of this first paragraph of Section 6 and subject to applicable law, rules or regulations, at any time after the closing date of the Offering, and at or prior to the Close of Business on the Termination Date (as such term is hereinafter defined), any Warrant Certificate or Warrant Certificates or Global Warrant or Global Warrants may be transferred, split up, combined or exchanged for another Warrant Certificate or Warrant Certificates or Global Warrant or Global Warrants, entitling the Holder to purchase a like number of shares of Common Stock as the Warrant Certificate or Warrant Certificates or Global Warrant or Global Warrants surrendered then entitled such Holder to purchase. Any Holder desiring to transfer, split up, combine or exchange any Warrant Certificate or Global Warrant shall make such request in writing delivered to the Warrant Agent, and shall surrender the Warrant Certificate or Warrant Certificates to be transferred, split up, combined or exchanged at the principal office of the Warrant Agent, provided that no such surrender is applicable to the Holder of a Global Warrant. Any requested transfer of Warrants, whether in book-entry form or certificate form, shall be accompanied by reasonable evidence of authority of the party making such request that may be required by the Warrant Agent. Thereupon the Warrant Agent shall, subject to the last sentence of this first paragraph of Section 6, countersign and deliver to the Person entitled thereto a Warrant Certificate or Warrant Certificates, as the case may be, as so requested. The Company may require payment from the Holder of a sum sufficient to cover any tax or governmental charge that may be imposed in connection with any transfer, split up, combination or exchange of Warrant Certificates. The Company shall compensate the Warrant Agent per the fee schedule mutually agreed upon by the parties hereto and provided separately on the date hereof.

(b) Upon receipt by the Warrant Agent of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of a Warrant Certificate, which evidence shall include an affidavit of loss, or in the case of mutilated certificates, the certificate or portion thereof remaining, and, in case of loss, theft or destruction, of indemnity in customary form and amount, provision of a bond and satisfaction of any other reasonable requirements established by Section 104-8405 of the Uniform Commercial Code as in effect in the State of Nevada, and reimbursement to the Company and the Warrant Agent of all reasonable expenses incidental thereto, and upon surrender to the Warrant Agent and cancellation of the Warrant Certificate if mutilated, the Company will make and deliver a new Warrant Certificate of like tenor to the Warrant Agent for delivery to the Holder in lieu of the Warrant Certificate so lost, stolen, destroyed or mutilated.

Section 7. Exercise of Warrants; Exercise Price; Termination Date.

(a) The Warrants shall be exercisable commencing on the Initial Exercise Date. The Warrants shall cease to be exercisable and shall terminate and become void, and all rights thereunder and under this Agreement shall cease, at or prior to the Close of Business on the Termination Date. Subject to the foregoing and to Section 7(b) below, the Holder of a Warrant may exercise the Warrant in whole or in part upon surrender of the Warrant Certificate, if required, with the executed Exercise Notice and payment of the Exercise Price, which may be made, at the option of the Holder, by wire transfer or by certified or official bank check in United States dollars, to the Warrant Agent at the principal office of the Warrant Agent or to the office of one of its agents as may be designated by the Warrant Agent from time to time. In the case of the Holder of a Global Warrant, the Holder shall deliver the executed Exercise Notice and the payment of the Exercise Price as described herein. Notwithstanding any other provision in this Agreement, a holder whose interest in a Global Warrant is a beneficial interest in a Global Warrant held in book-entry form through the Depository (or another established clearing corporation performing similar functions), shall effect exercises by delivering to the Depository (or such other clearing corporation, as applicable) the appropriate instruction form for exercise, complying with the procedures to effect exercise that are required by the Depository (or such other clearing corporation, as applicable). The Company acknowledges that the bank accounts maintained by the Warrant Agent in connection with the services provided under this Agreement will be in its name and that the Warrant Agent may receive investment earnings in connection with the investment at Warrant Agent risk and for its benefit of funds held in those accounts from time to time. Neither the Company nor the Holders will receive interest on any deposits or Exercise Price.



(b) Upon receipt of an Exercise Notice for a Cashless Exercise, the Company will promptly calculate and transmit to the Warrant Agent the number of Warrant Shares issuable in connection with such Cashless Exercise and deliver a copy of the Exercise Notice to the Warrant Agent, which shall issue such number of Warrant Shares in connection with such Cashless Exercise.

(c) Upon the Warrant Agent's receipt of a Warrant Certificate at or prior to the Close of Business on the Termination Date set forth in such Warrant Certificate, with the executed Exercise Notice, accompanied by payment of the Exercise Price for the shares to be purchased (other than in the case of a Cashless Exercise) and an amount equal to any applicable tax, governmental charge or expense reimbursement referred to in Section 6 in cash, or by certified check or bank draft payable to the order of the Company (or, in the case of the Holder of a Global Warrant, the delivery of the executed Exercise Notice and the payment of the Exercise Price (other than in the case of a Cashless Exercise) and any other applicable amounts as set forth herein), the Warrant Agent shall cause the Warrant Shares underlying such Warrant Certificate or Global Warrant to be delivered to or upon the order of the Holder of such Warrant Certificate or Global Warrant, registered in such name or names as may be designated by such Holder, no later than the Warrant Share Delivery Date. If the Company is then a participant in the DWAC system of the Depository and either (A) there is an effective registration statement permitting the issuance of the Warrant Shares to or resale of the Warrant Shares by Holder or (B) the Warrant is being exercised via Cashless Exercise, then the certificates for Warrant Shares shall be transmitted by the Warrant Agent to the Holder by crediting the account of the Holder's broker with the Depository through its DWAC system. For the avoidance of doubt, if the Company becomes obligated to pay any amounts to any Holders pursuant to Section 2(d)(i) or 2(d)(iv) of the Warrant Certificate, such obligation shall be solely that of the Company and not that of the Warrant Agent. Notwithstanding anything else to the contrary in this Agreement, except in the case of a Cashless Exercise, if any Holder fails to duly deliver payment to the Warrant Agent of an amount equal to the aggregate Exercise Price of the Warrant Shares to be purchased upon exercise of such Holder's Warrant as set forth in Section 7(a) hereof, the Warrant Agent will not be obligated to deliver certificates representing any such Warrant Shares (via DWAC or otherwise) until following receipt of such payment, and the applicable Warrant Share Delivery Date shall be deemed extended by one day for each day (or part thereof) until such payment is delivered to the Warrant Agent.

(d) The Warrant Agent shall deposit all funds received by it in payment of the Exercise Price for all Warrants in the account of the Company maintained with the Warrant Agent for such purpose (or to such other account as directed by the Company in writing) and shall advise the Company via telephone at the end of each day on which funds for the exercise of any Warrant are received of the amount so deposited to its account. The Warrant Agent shall promptly confirm such telephonic advice to the Company in writing.

(e) In case the Holder of any Warrant Certificate shall exercise fewer than all Warrants evidenced thereby, a new Warrant Certificate evidencing the number of Warrants equivalent to the number of Warrants remaining unexercised may be issued by the Warrant Agent to the Holder of such Warrant Certificate or to his duly authorized assigns in accordance with Section 2(d)(ii) of the Warrant Certificate, subject to the provisions of Section 6 hereof.

Section 8. Cancellation and Destruction of Warrant Certificates. All Warrant Certificates surrendered for the purpose of exercise, transfer, split up, combination or exchange shall, if surrendered to the Company or to any of its agents, be delivered to the Warrant Agent for cancellation or in canceled form, or, if surrendered to the Warrant Agent, shall be canceled by it, and no Warrant Certificates shall be issued in lieu thereof except as expressly permitted by any of the provisions of this Agreement. The Company shall deliver to the Warrant Agent for cancellation and retirement, and the Warrant Agent shall so cancel and retire, any other Warrant Certificate purchased or acquired by the Company otherwise than upon the exercise thereof.

#### Section 9. Certain Representations; Reservation and Availability of Shares of Common Stock or Cash.

(a) This Agreement has been duly authorized, executed and delivered by the Company and, assuming due authorization, execution and delivery hereof by the Warrant Agent, constitutes a valid and legally binding obligation of the Company enforceable against the Company in accordance with its terms, and the Warrants have been duly authorized, executed and issued by the Company and, assuming due authentication thereof by the Warrant Agent pursuant hereto and payment therefor by the Holders as provided in the Registration Statement, constitute valid and legally binding obligations of the Company enforceable against the Company in accordance with their terms and entitled to the benefits hereof; in each case except as enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium and other similar laws relating to or affecting creditors' rights generally or by general equitable principles (regardless of whether such enforceability is considered in a proceeding in equity or at law).

(b) As of the date hereof, the authorized common stock of the Company consists of 150,000,000 shares of Common Stock, of which 29,681,106 shares of Common Stock are issued and outstanding, and 5,462,500 shares of Common Stock are reserved for issuance upon exercise of the Warrants. Except as disclosed in the Registration Statement, there are no other outstanding obligations, warrants, options or other rights to subscribe for or purchase from the Company any class of capital stock of the Company.

(c) The Company covenants and agrees that it will cause to be reserved and kept available out of its authorized and unissued shares of Common Stock or its authorized and issued shares of Common Stock held in its treasury, free from preemptive rights, the number of shares of Common Stock that will be sufficient to permit the exercise in full of all outstanding Warrants.

(d) The Warrant Agent will create a reserve account, into which shall be reserved such number of shares of Common Stock that are issuable upon the exercise of the Warrants in full, and from such reserve account shall the Common Stock be issued upon the exercise of Warrants.

(e) The Company further covenants and agrees that it will pay when due and payable any and all federal and state transfer taxes and charges which may be payable in respect of the original issuance or delivery of the Warrant Certificates or certificates evidencing Common Stock upon exercise of the Warrants. The Company shall not, however, be required to pay any tax or governmental charge which may be payable in respect of any transfer involved in the transfer or delivery of Warrant Certificates or the issuance or delivery of certificates for Common Stock in a name other than that of the Holder of the Warrant Certificate evidencing Warrants surrendered for exercise or to issue or deliver any certificate for shares of Common Stock upon the exercise of any Warrants until any such tax or governmental charge shall have been paid (any such tax or governmental charge being payable by the Holder of such Warrant Certificate at the time of surrender) or until it has been established to the Company's reasonable satisfaction that no such tax or governmental charge is due.

Section 10. Common Stock Record Date. Each Person in whose name any certificate for shares of Common Stock is issued (or to whose broker's account is credited shares of Common Stock through the DWAC system) upon the exercise of Warrants shall for all purposes be deemed to have become the holder of record for the Common Stock represented thereby on, and such certificate shall be dated the date upon which the Warrant Certificate evidencing such Warrant was duly surrendered (but only if required herein) and payment of the Exercise Price (and any applicable transfer taxes) and submission of the Exercise Notice was made; provided, however, that if the date of such surrender (if applicable), payment and submission is a date upon which the Common Stock transfer books of the Company are closed, such Person shall be deemed to have become the record holder of such shares on, and such certificate shall be dated, the next succeeding day on which the Common Stock transfer books of the Company are open.

Section 11. Adjustment of Exercise Price, Number of Shares of Common Stock or Number of the Company Warrants. The Exercise Price, the number of shares covered by each Warrant and the number of Warrants outstanding are subject to adjustment from time to time as provided in Section 3 of the Warrant Certificate. In the event that at any time, as a result of an adjustment made pursuant to Section 3 of the Warrant Certificate, the Holder of any Warrant thereafter exercised shall become entitled to receive any shares of capital stock of the Company other than shares of Common Stock, thereafter the number of such other shares so receivable upon exercise of any Warrant shall be subject to adjustment from time to time in a manner and on terms as nearly equivalent as practicable to the provisions with respect to the shares contained in Section 3 of the Warrant Certificate, and the provisions of Sections 7, 9 and 13 of this Agreement with respect to the shares of Common Stock shall apply on like terms to any such other shares. All Warrants originally issued by the Company subsequent to any adjustment made to the Exercise Price pursuant to the Warrant Certificate shall evidence the right to purchase, at the adjusted Exercise Price, the number of shares of Common Stock purchasable from time to time hereunder upon exercise of the Warrants, all subject to further adjustment as provided herein.

Section 12. Certification of Adjusted Exercise Price or Number of Shares of Common Stock. Whenever the Exercise Price or the number of shares of Common Stock issuable upon the exercise of each Warrant is adjusted as provided in Section 11 or 13, the Company shall (a) promptly prepare a certificate setting forth the Exercise Price of each Warrant as so adjusted, and a brief statement of the facts accounting for such adjustment, (b) promptly file with the Warrant Agent and with each transfer agent for the Common Stock a copy of such certificate and (c) instruct the Warrant Agent to send a copy thereof to each Holder of a Warrant Certificate.

Section 13. Fractional Shares of Common Stock.

(a) The Company shall not issue fractions of Warrants or distribute Warrant Certificates which evidence fractional Warrants. Whenever any fractional Warrant would otherwise be required to be issued or distributed, the actual issuance or distribution shall reflect a rounding of such fraction to the nearest whole Warrant (rounded down).

(b) The Company shall not issue fractions of shares of Common Stock upon exercise of Warrants or distribute stock certificates which evidence fractional shares of Common Stock. Whenever any fraction of a share of Common Stock would otherwise be required to be issued or distributed, the actual issuance or distribution in respect thereof shall be made in accordance with Section 2(d)(v) of the Warrant Certificate.

Section 14. Conditions of the Warrant Agent's Obligations. The Warrant Agent accepts its obligations herein set forth upon the terms and conditions hereof, including the following to all of which the Company agrees and to all of which the rights hereunder of the Holders from time to time of the Warrant Certificates shall be subject:

- (a) Compensation and Indemnification. The Company agrees promptly to pay the Warrant Agent the compensation detailed on Exhibit 2 hereto for all services rendered by the Warrant Agent and to reimburse the Warrant Agent for reasonable out-of-pocket expenses (including reasonable counsel fees) incurred without gross negligence, bad faith or willful misconduct by the Warrant Agent in connection with the services rendered hereunder by the Warrant Agent. The Company also agrees to indemnify the Warrant Agent for, and to hold it harmless against, any loss, liability or expense incurred without gross negligence, bad faith or willful misconduct on the part of the Warrant Agent, arising out of or in connection with its acting as Warrant Agent hereunder, including the reasonable costs and expenses of defending against any claim of such liability.
- (b) Agent for the Company. In acting under this Warrant Agreement and in connection with the Warrant Certificates, the Warrant Agent is acting solely as agent of the Company and does not assume any obligations or relationship of agency or trust for or with any of the Holders of Warrant Certificates or beneficial owners of Warrants.
- (c) Counsel. The Warrant Agent may consult with counsel satisfactory to it, which may include counsel for the Company, and the written advice of such counsel shall be full and complete authorization and protection in respect of any action taken, suffered or omitted by it hereunder in good faith and in accordance with the advice of such counsel.
- (d) Documents. The Warrant Agent shall be protected and shall incur no liability for or in respect of any action taken or omitted by it in reliance upon any Warrant Certificate, notice, direction, consent, certificate, affidavit, statement or other paper or document reasonably believed by it to be genuine and to have been presented or signed by the proper parties.
- (e) Certain Transactions. The Warrant Agent, and its officers, directors and employees, may become the owner of, or acquire any interest in, Warrants, with the same rights that it or they would have if it were not the Warrant Agent hereunder, and, to the extent permitted by applicable law, it or they may engage or be interested in any financial or other transaction with the Company and may act on, or as depository, trustee or agent for, any committee or body of Holders of Warrant Securities or other obligations of the Company as freely as if it were not the Warrant Agent hereunder. Nothing in this Warrant Agreement shall be deemed to prevent the Warrant Agent from acting as trustee under any indenture to which the Company is a party.
- (f) No Liability for Interest. Unless otherwise agreed with the Company, the Warrant Agent shall have no liability for interest on any monies at any time received by it pursuant to any of the provisions of this Agreement or of the Warrant Certificates.
- (g) No Liability for Invalidity. The Warrant Agent shall have no liability with respect to any invalidity of this Agreement or any of the Warrant Certificates (except as to the Warrant Agent's countersignature thereon).
- (h) No Responsibility for Representations. The Warrant Agent shall not be responsible for any of the recitals or representations herein or in the Warrant Certificates (except as to the Warrant Agent's countersignature thereon), all of which are made solely by the Company.
- (i) No Implied Obligations. The Warrant Agent shall be obligated to perform only such duties as are herein and in the Warrant Certificates specifically set forth and no implied duties or obligations shall be read into this Agreement or the Warrant Certificates against the Warrant Agent. The Warrant Agent shall not be under any obligation to take any action hereunder which may tend to involve it in any expense or liability, the payment of which within a reasonable time is not, in its reasonable opinion, assured to it. The Warrant Agent shall not be accountable or under any duty or responsibility for the use by the Company of any of the Warrant Certificates authenticated by the Warrant Agent and delivered by it to the Company pursuant to this Agreement or for the application by the Company of the proceeds of the Warrant Certificates. The Warrant Agent shall have no duty or responsibility in case of any default by the Company in the performance of its covenants or agreements contained herein or in the Warrant Certificates or in the case of the receipt of any written demand from a Holder of a Warrant Certificate with respect to such default, including, without limiting the generality of the foregoing, any duty or responsibility to initiate or attempt to initiate any proceedings at law.

Section 15. Purchase or Consolidation or Change of Name of Warrant Agent.

(a) Any corporation into which the Warrant Agent or any successor Warrant Agent may be merged or with which it may be consolidated, or any corporation resulting from any merger or consolidation to which the Warrant Agent or any successor Warrant Agent shall be party, or any corporation succeeding to the corporate trust business of the Warrant Agent or any successor Warrant Agent, shall be the successor to the Warrant Agent under this Agreement without the execution or filing of any paper or any further act on the part of any of the parties hereto, provided that such corporation would be eligible for appointment as a successor Warrant Agent under the provisions of Section 17. In case at the time such successor Warrant Agent shall succeed to the agency created by this Agreement any of the Warrant Certificates shall have been countersigned but not delivered, any such successor Warrant Agent may adopt the countersignature of the predecessor Warrant Agent and deliver such Warrant Certificates so countersigned; and in case at that time any of the Warrant Certificates shall not have been countersigned, any successor Warrant Agent may countersign such Warrant Certificates either in the name of the predecessor Warrant Agent or in the name of the successor Warrant Agent; and in all such cases such Warrant Certificates shall have the full force provided in the Warrant Certificates and in this Agreement.

(b) In case at any time the name of the Warrant Agent shall be changed and at such time any of the Warrant Certificates shall have been countersigned but not delivered, the Warrant Agent may adopt the countersignature under its prior name and deliver Warrant Certificates so countersigned; and in case at that time any of the Warrant Certificates shall not have been countersigned, the Warrant Agent may countersign such Warrant Certificates either in its prior name or in its changed name; and in all such cases such Warrant Certificates shall have the full force provided in the Warrant Certificates and in this Agreement.

Section 16. Duties of Warrant Agent. The Warrant Agent undertakes the duties and obligations imposed by this Agreement upon the following terms and conditions, by all of which the Company, by its acceptance hereof, shall be bound:

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

(b) Whenever in the performance of its duties under this Agreement the Warrant Agent shall deem it necessary or desirable that any fact or matter be proved or established by the Company prior to taking or suffering any action hereunder, such fact or matter (unless other evidence in respect thereof be herein specifically prescribed) may be deemed to be conclusively proved and established by a certificate signed by the Chief Executive Officer, Chief Financial Officer or Vice President of the Company; and such certificate shall be full authentication to the Warrant Agent for any action taken or suffered in good faith by it under the provisions of this Agreement in reliance upon such certificate.

(c) Subject to the limitation set forth in Section 14, the Warrant Agent shall be liable hereunder only for its own gross negligence, bad faith or willful misconduct, or for a breach by it of this Agreement.

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

(e) The Warrant Agent shall not be under any responsibility in respect of the validity of this Agreement or the execution and delivery hereof (except the due execution hereof by the Warrant Agent) or in respect of the validity or execution of any Warrant Certificate (except its countersignature thereof); nor shall it be responsible for any breach by the Company of any covenant or condition contained in this Agreement or in any Warrant Certificate; nor shall it be responsible for the adjustment of the Exercise Price or the making of any change in the number of shares of Common Stock required under the provisions of Section 11 or 13 or responsible for the manner, method or amount of any such change or the ascertaining of the existence of facts that would require any such adjustment or change (except with respect to the exercise of Warrants evidenced by Warrant Certificates after actual notice of any adjustment of the Exercise Price); nor shall it by any act hereunder be deemed to make any representation or warranty as to the authorization or reservation of any shares of Common Stock to be issued pursuant to this Agreement or any Warrant Certificate or as to whether any shares of Common Stock will, when issued, be duly authorized, validly issued, fully paid and nonassessable.

(f) Each party hereto agrees that it will perform, execute, acknowledge and deliver or cause to be performed, executed, acknowledged and delivered all such further and other acts, instruments and assurances as may reasonably be required by the other party hereto for the carrying out or performing by any party of the provisions of this Agreement.

(g) The Warrant Agent is hereby authorized to accept instructions with respect to the performance of its duties hereunder from the Chief Executive Officer, Chief Financial Officer or Vice President of the Company, and to apply to such officers for advice or instructions in connection with its duties, and it shall not be liable and shall be indemnified and held harmless for any action taken or suffered to be taken by it in good faith in accordance with instructions of any such officer, provided Warrant Agent carries out such instructions without gross negligence, bad faith or willful misconduct.

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

(i) The Warrant Agent may execute and exercise any of the rights or powers hereby vested in it or perform any duty hereunder either itself or by or through its attorney or agents, and the Warrant Agent shall not be answerable or accountable for any act, default, neglect or misconduct of any such attorney or agents or for any loss to the Company resulting from any such act, default, neglect or misconduct, provided reasonable care was exercised in the selection and continued employment thereof.

Section 17. Change of Warrant Agent. The Warrant Agent may resign and be discharged from its duties under this Agreement upon 30 days' notice in writing sent to the Company and to each transfer agent of the Common Stock, and to the Holders of record of the Warrant Certificates. The Company may remove the Warrant Agent or any successor Warrant Agent upon 30 days' notice in writing, sent to the Warrant Agent or successor Warrant Agent, as the case may be, and to each transfer agent of the Common Stock, and to the Holders of the Warrant Certificates. If the Warrant Agent shall resign or be removed or shall otherwise become incapable of acting, the Company shall appoint a successor to the Warrant Agent. If the Company shall fail to make such appointment within a period of 30 days after such removal or after it has been notified in writing of such resignation or incapacity by the resigning or incapacitated Warrant Agent or by the Holder of a Warrant Certificate (who shall, with such notice, submit his Warrant Certificate for inspection by the Company), then the Holder of any Warrant Certificate may apply to any court of competent jurisdiction for the appointment of a new Warrant Agent, provided that, for purposes of this Agreement, the Company shall be deemed to be the Warrant Agent until a new warrant agent is appointed. Any successor Warrant Agent, whether appointed by the Company or by such a court, shall be a corporation organized and doing business under the laws of the United States or of a state thereof, in good standing, which is authorized under such laws to exercise corporate trust powers and is subject to supervision or examination by federal or state authority and which has at the time of its appointment as Warrant Agent a combined capital and surplus of at least \$50,000,000. After appointment, the successor Warrant Agent shall be vested with the same powers, rights, duties and responsibilities as if it had been originally named as Warrant Agent without further act or deed; but the predecessor Warrant Agent shall deliver and transfer to the successor Warrant Agent any property at the time held by it hereunder, and execute and deliver any further assurance, conveyance, act or deed necessary for the purpose. Not later than the effective date of any such appointment, the Company shall file notice thereof in writing with the predecessor Warrant Agent and each transfer agent of the Common Stock, and mail a notice thereof in writing to the Holders of the Warrant Certificates. However, failure to give any notice provided for in this Section 17, or any defect therein, shall not affect the legality or validity of the resignation or removal of the Warrant Agent or the appointment of the successor Warrant Agent, as the case may be.

Section 18. Issuance of New Warrant Certificates. Notwithstanding any of the provisions of this Agreement or of the Warrants to the contrary, the Company may, at its option, issue new Warrant Certificates evidencing Warrants in such form as may be approved by its Board of Directors to reflect any adjustment or change in the Exercise Price per share and the number or kind or class of shares of stock or other securities or property purchasable under the several Warrant Certificates made in accordance with the provisions of this Agreement.

Section 19. Notices. Notices or demands authorized by this Agreement to be given or made (i) by the Warrant Agent or by the Holder of any Warrant Certificate to or on the Company, (ii) subject to the provisions of Section 17, by the Company or by the Holder of any Warrant Certificate to or on the Warrant Agent or (iii) by the Company or the Warrant Agent to the Holder of any Warrant Certificate, shall be deemed given (a) on the date delivered, if delivered personally, (b) on the first Business Day following the deposit thereof with Federal Express or another recognized overnight courier, if sent by Federal Express or another recognized overnight courier, (c) on the fourth Business Day following the mailing thereof with postage prepaid, if mailed by registered or certified mail (return receipt requested), and (d) the date of transmission, if such notice or communication is delivered via facsimile or email attachment at or prior to 5:30 p.m. (New York City time) on a Business Day and (e) the next Business Day after the date of transmission, if such notice or communication is delivered via facsimile or email attachment on a day that is not a Business Day or later than 5:30 p.m. (New York City time) on any Business Day, in each case to the parties at the following addresses (or at such other address for a party as shall be specified by like notice):

(a) If to the Company, to:

Tonix Pharmaceuticals Holding Corp.  
509 Madison Avenue, Suite 306  
New York, New York 10022  
Attention: Investor Relations  
Fax: 212-923-5700  
Email: investor.relations@tonixpharma.com

(b) If to the Warrant Agent, to:

VStock Transfer, LLC  
18 Lafayette Place  
Woodmere, NY 11598.  
Attention: Yoel Goldfeder  
Facsimile: 646-536-3179  
Email: info@vstocktransfer.com

For any notice delivered by email to be deemed given or made, such notice must be followed by notice sent by overnight courier service to be delivered on the next business day following such email, unless the recipient of such email has acknowledged via return email receipt of such email.

(c) If to the Holder of any Warrant Certificate, to the address of such Holder as shown on the registry books of the Company. Any notice required to be delivered by the Company to the Holder of any Warrant may be given by the Warrant Agent on behalf of the Company. Notwithstanding any other provision of this Agreement, where this Agreement provides for notice of any event to a Holder of any Warrant, such notice shall be sufficiently given if given to the Depository (or its designee) pursuant to the procedures of the Depository or its designee.

#### Section 20. Supplements and Amendments.

(a) The Company and the Warrant Agent may from time to time supplement or amend this Agreement without the approval of any Holders of Global Warrant Certificates in order to add to the covenants and agreements of the Company for the benefit of the Holders of the Global Warrant Certificates or to surrender any rights or power reserved to or conferred upon the Company in this Agreement, provided that such addition or surrender shall not adversely affect the interests of the Holders of the Global Warrant Certificates in any material respect.

(b) In addition to the foregoing, with the consent of Holders of Warrants entitled, upon exercise thereof, to receive not less than a majority of the shares of Common Stock issuable thereunder, the Company and the Warrant Agent may modify this Agreement for the purpose of adding any provisions to or changing in any manner or eliminating any of the provisions of this Warrant Agreement or modifying in any manner the rights of the Holders of the Global Warrant Certificates; provided, however, that no modification of the terms (including but not limited to the adjustments described in Section 11) upon which the Warrants are exercisable or reducing the percentage required for consent to modification of this Agreement may be made without the consent of the Holder of each outstanding warrant certificate affected thereby. As a condition precedent to the Warrant Agent's execution of any amendment, the Company shall deliver to the Warrant Agent a certificate from a duly authorized officer of the Company that states that the proposed amendment complies with the terms of this Section 20.

Section 21. Successors. All covenants and provisions of this Agreement by or for the benefit of the Company or the Warrant Agent shall bind and inure to the benefit of their respective successors and assigns hereunder.

Section 22. Benefits of this Agreement. Nothing in this Agreement shall be construed to give any Person other than the Company, the Holders of Warrant Certificates and the Warrant Agent any legal or equitable right, remedy or claim under this Agreement; but this Agreement shall be for the sole and exclusive benefit of the Company, the Warrant Agent and the Holders of the Warrant Certificates.

Section 23. Governing Law. This Agreement and each Warrant Certificate issued hereunder shall be governed by, and construed in accordance with, the laws of the State of New York without giving effect to the conflicts of law principles thereof.

Section 24. Counterparts. This Agreement may be executed in any number of counterparts and each of such counterparts shall for all purposes be deemed to be an original, and all such counterparts shall together constitute but one and the same instrument.

Section 25. Captions. The captions of the sections of this Agreement have been inserted for convenience only and shall not control or affect the meaning or construction of any of the provisions hereof.

Section 26. Information. The Company agrees to promptly provide to the Holders of the Warrants any information it provides to the holders of the Common Stock, except to the extent any such information is publicly available on the EDGAR system (or any successor thereof) of the Securities and Exchange Commission.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed as of the day and year first above written.

TONIX PHARMACEUTICALS HOLDING CORP.

By: /s/ Seth Lederman

Name: Seth Lederman

Title: President and Chief Executive Officer

VSTOCK TRANSFER, LLC

By: /s/ Yoel Goldfeder

Name: Yoel Goldfeder

Title: President

**Annex A: Form of Warrant Certificate Request Notice**

**WARRANT CERTIFICATE REQUEST NOTICE**

To: VStock Transfer, LLC as Warrant Agent for Tonix Pharmaceuticals Holding Corp. (the “Company”)

The undersigned Holder of Common Stock Purchase Warrants (“Warrants”) in the form of Global Warrants issued by the Company hereby elects to receive a Warrant Certificate evidencing the Warrants held by the Holder as specified below:

1. Name of Holder of Warrants in form of Global Warrants: \_\_\_\_\_
2. Name of Holder in Warrant Certificate (if different from name of Holder of Warrants in form of Global Warrants):  
\_\_\_\_\_
3. Number of Warrants in name of Holder in form of Global Warrants: \_\_\_\_\_
4. Number of Warrants for which Warrant Certificate shall be issued: \_\_\_\_\_
5. Number of Warrants in name of Holder in form of Global Warrants after issuance of Warrant Certificate, if any: \_\_\_\_\_
6. Warrant Certificate shall be delivered to the following address:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

[SIGNATURE OF HOLDER]

Name of Investing Entity: \_\_\_\_\_

Signature of Authorized Signatory of Investing Entity: \_\_\_\_\_

Name of Authorized Signatory: \_\_\_\_\_

Title of Authorized Signatory: \_\_\_\_\_

Date: \_\_\_\_\_



**Exhibit 1: Form of Warrant Certificate**

**COMMON STOCK PURCHASE WARRANT**

Warrant Shares: [•]

Initial Exercise Date: [•], 2016

THIS COMMON STOCK PURCHASE WARRANT (the “Warrant”) certifies that, for value received, \_\_\_\_\_ or its assigns (the “Holder”) is entitled, upon the terms and subject to the limitations on exercise and the conditions hereinafter set forth, at any time on or after the date hereof (the “Initial Exercise Date”) and on or prior to the close of business on the fifth year anniversary of the Initial Exercise Date (the “Termination Date”) but not thereafter, to subscribe for and purchase from TONIX PHARMACEUTICALS HOLDING CORP., a Nevada corporation (the “Company”), up to [•] shares (as subject to adjustment hereunder, the “Warrant Shares”) of Company common stock, par value \$0.001 per share (the “Common Stock”). The purchase price of one share of Common Stock under this Warrant shall be equal to the Exercise Price, as defined in Section 2(b).

**Section 1. Definitions.** In addition to the terms defined elsewhere in this Warrant, the following terms have the meanings set forth in this Section 1:

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

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

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

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

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

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

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

“Trading Day” means a day on which the principal Trading Market is open for trading; provided, that in the event that the Common Stock is not listed or quoted for trading on a Trading Market on the date in question, then Trading Day shall mean any day except any Saturday, any Sunday, any day which is a federal legal holiday in the United States or any day on which banking institutions in the State of New York are authorized or required by law or other governmental action to close.

“Trading Market” means any of the following markets or exchanges on which the Common Stock is listed or quoted for trading on the date in question: the NYSE MKT, the Nasdaq Capital Market, the Nasdaq Global Market, the Nasdaq Global Select Market, the New York Stock Exchange, the OTC Bulletin Board, the OTCQB, the OTCQX, or the OTC Pink Marketplace maintained by the OTC Markets Group, Inc. (or any successors to any of the foregoing).

“Warrant Agency Agreement” means the warrant agency agreement, entered into between the Company and the Warrant Agent in connection with the Warrant.

“Warrant Agent” means VStock Transfer, LLC, and any successor warrant agent of the Company.

Section 2. Exercise.

- a) Exercise of the purchase rights represented by this Warrant may be made, in whole or in part, at any time or times on or after the Initial Exercise Date and on or before the Termination Date by delivery to the Company (or such other office or agency of the Company as it may designate by notice in writing to the registered Holder at the address of the Holder appearing on the books of the Company) of a duly executed facsimile copy (or e-mail attachment) of the Notice of Exercise in the form annexed hereto. No later than 12:00 p.m. Eastern Time within the earlier of (i) the third Trading Day and (ii) the number of Trading Days comprising the Standard Settlement Period (as defined in Section 2(d)(i) herein), following the date of exercise as aforesaid, the Holder shall deliver the aggregate Exercise Price for the shares specified in the applicable Notice of Exercise by wire transfer or cashier's check drawn on a United States bank unless the cashless exercise procedure specified in Section 2(c) below is specified in the applicable Notice of Exercise. No ink-original Notice of Exercise shall be required, nor shall any medallion guarantee (or other type of guarantee or notarization) of any Notice of Exercise form be required. Notwithstanding anything herein to the contrary and so long as the Warrant is not in certificated format, the Holder shall not be required to physically surrender this Warrant to the Company until the Holder has purchased all of the Warrant Shares available hereunder and the Warrant has been exercised in full, in which case, the Holder shall surrender this Warrant to the Company for cancellation within three (3) Trading Days of the date the final Notice of Exercise is delivered to the Company. Partial exercises of this Warrant resulting in purchases of a portion of the total number of Warrant Shares available hereunder shall have the effect of lowering the outstanding number of Warrant Shares purchasable hereunder in an amount equal to the applicable number of Warrant Shares purchased. The Holder and the Company shall maintain records showing the number of Warrant Shares purchased and the date of such purchases. The Company shall deliver any objection to any Notice of Exercise within one (1) Business Day of receipt of such notice. **The Holder and any assignee, by acceptance of this Warrant, acknowledge and agree that, by reason of the provisions of this paragraph, following the purchase of a portion of the Warrant Shares hereunder, the number of Warrant Shares available for purchase hereunder at any given time may be less than the amount stated on the face hereof.**
- b) Exercise Price. The exercise price per share of the Common Stock under this Warrant shall be \$0.63 subject to adjustment hereunder (the “Exercise Price”).
- c) Cashless Exercise. If at the time of exercise hereof there is no effective registration statement registering, or the prospectus contained therein is not available for the issuance of the Warrant Shares to the Holder, then this Warrant may also be exercised, in whole or in part, at such time by means of a “cashless exercise” in which the Holder shall be entitled to receive a number of Warrant Shares equal to the quotient obtained by dividing [(A-B) (X)] by (A), where:
- (A) = the last VWAP immediately preceding the time of delivery of the Notice of Exercise giving rise to the applicable “cashless exercise”, as set forth in the applicable Notice of Exercise (to clarify, the “last VWAP” will be the last VWAP as calculated over an entire Trading Day such that, in the event that this Warrant is exercised at a time that the Trading Market is open, the prior Trading Day’s VWAP shall be used in this calculation);
- (B) = the Exercise Price of this Warrant, as adjusted hereunder; and

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

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

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

Notwithstanding anything herein to the contrary, on the Termination Date, this Warrant shall be automatically exercised via cashless exercise pursuant to this Section 2(c).

d) Mechanics of Exercise.

- i. Delivery of Warrant Shares Upon Exercise. The Company shall cause the Warrant Shares purchased hereunder to be transmitted by the Warrant Agent to the Holder by crediting the account of the Holder's or its designee's balance account with The Depository Trust Company through its Deposit or Withdrawal at Custodian system (“DWAC”) if the Company is then a participant in such system and either (A) there is an effective registration statement permitting the issuance of the Warrant Shares to or resale of the Warrant Shares by Holder or (B) this Warrant is being exercised via cashless exercise, and otherwise by physical delivery of a certificate, registered in the Company's share register in the name of the Holder or its designee, for the number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the address specified by the Holder in the Notice of Exercise by the date that is the earlier of (i) the earlier of (A) three (3) Trading Days after the delivery to the Company of the Notice of Exercise and (B) one (1) Trading Day after delivery of the aggregate Exercise Price and (ii) the number of Trading Days comprising the Standard Settlement Period (such date, the “Warrant Share Delivery Date”). Upon delivery of the Notice of Exercise, the Holder shall be deemed for all corporate purposes to have become the holder of record of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date of delivery of the Warrant Shares, provided that payment of the aggregate Exercise Price (other than in the case of a cashless exercise) is received within the earlier of (i) by 12:00 p.m. Eastern Time on the third Trading Day and (ii) the number of Trading Days comprising the Standard Settlement Period, following delivery of the Notice of Exercise. If the Company fails for any reason to deliver to the Holder the Warrant Shares subject to a Notice of Exercise by the Warrant Share Delivery Date, the Company shall pay to the Holder, in cash, as liquidated damages and not as a penalty, for each \$1,000 of Warrant Shares subject to such exercise (based on the VWAP of the Common Stock on the date of the applicable Notice of Exercise), \$10 per Trading Day (increasing to \$20 per Trading Day on the fifth Trading Day after such liquidated damages begin to accrue) for each Trading Day after such Warrant Share Delivery Date until such Warrant Shares are delivered or Holder rescinds such exercise. The Company agrees to maintain a transfer agent that is a participant in the FAST program so long as this Warrant remains outstanding and exercisable. As used herein, “Standard Settlement Period” means the standard settlement period, expressed in a number of Trading Days, on the Company's primary Trading Market with respect to the Common Stock as in effect on the date of delivery of the Notice of Exercise.
- ii. Delivery of New Warrants Upon Exercise. If this Warrant shall have been exercised in part, the Company shall, at the request of a Holder and upon surrender of this Warrant certificate, at the time of delivery of the Warrant Shares, deliver to the Holder a new Warrant evidencing the rights of the Holder to purchase the unpurchased Warrant Shares called for by this Warrant, which new Warrant shall in all other respects be identical with this Warrant.
- iii. Rescission Rights. If the Company fails to cause the Warrant Agent to transmit to the Holder the Warrant Shares pursuant to Section 2(d)(i) by the Warrant Share Delivery Date, then the Holder will have the right to rescind such exercise.

- iv. Compensation for Buy-In on Failure to Timely Deliver Warrant Shares Upon Exercise. In addition to any other rights available to the Holder, if the Company fails to cause the Warrant Agent to transmit to the Holder the Warrant Shares in accordance with the provisions of Section 2(d)(i) above pursuant to an exercise on or before the Warrant Share Delivery Date, and if after such date the Holder is required by its broker to purchase (in an open market transaction or otherwise) or the Holder's brokerage firm otherwise purchases, shares of Common Stock to deliver in satisfaction of a sale by the Holder of the Warrant Shares which the Holder anticipated receiving upon such exercise (a "Buy-In"), then the Company shall (A) pay in cash to the Holder the amount, if any, by which (x) the Holder's total purchase price (including brokerage commissions, if any) for the shares of Common Stock so purchased exceeds (y) the amount obtained by multiplying (1) the number of Warrant Shares that the Company was required to deliver to the Holder in connection with the exercise at issue times (2) the price at which the sell order giving rise to such purchase obligation was executed, and (B) at the option of the Holder, either reinstate the portion of the Warrant and equivalent number of Warrant Shares for which such exercise was not honored (in which case such exercise shall be deemed rescinded) or deliver to the Holder the number of shares of Common Stock that would have been issued had the Company timely complied with its exercise and delivery obligations hereunder. For example, if the Holder purchases Common Stock having a total purchase price of \$11,000 to cover a Buy-In with respect to an attempted exercise of shares of Common Stock with an aggregate sale price giving rise to such purchase obligation of \$10,000, under clause (A) of the immediately preceding sentence the Company shall be required to pay the Holder \$1,000. The Holder shall provide the Company written notice indicating the amounts payable to the Holder in respect of the Buy-In and, upon request of the Company, evidence of the amount of such loss. Nothing herein shall limit a Holder's right to pursue any other remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Company's failure to timely deliver shares of Common Stock upon exercise of the Warrant as required pursuant to the terms hereof.
- v. No Fractional Shares or Scrip. No fractional shares or scrip representing fractional shares shall be issued upon the exercise of this Warrant. As to any fraction of a share which the Holder would otherwise be entitled to purchase upon such exercise, the Company shall, at its election, either pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the Exercise Price or round up to the next whole share.
- vi. Charges, Taxes and Expenses. Issuance of Warrant Shares shall be made without charge to the Holder for any issue or transfer tax or other incidental expense in respect of the issuance of such Warrant Shares, all of which taxes and expenses shall be paid by the Company, and such Warrant Shares shall be issued in the name of the Holder or in such name or names as may be directed by the Holder; provided, however, that in the event that Warrant Shares are to be issued in a name other than the name of the Holder, this Warrant when surrendered for exercise shall be accompanied by the Assignment Form attached hereto duly executed by the Holder and the Company may require, as a condition thereto, the payment of a sum sufficient to reimburse it for any transfer tax incidental thereto. The Company shall pay all Warrant Agent fees required for same-day processing of any Notice of Exercise and all fees to the Depository Trust Company (or another established clearing corporation performing similar functions) required for same-day electronic delivery of the Warrant Shares.
- vii. Closing of Books. The Company will not close its stockholder books or records in any manner which prevents the timely exercise of this Warrant, pursuant to the terms hereof.

e) Holder's Exercise Limitations. The Company shall not effect any exercise of this Warrant, and a Holder shall not have the right to exercise any portion of this Warrant, pursuant to Section 2 or otherwise, to the extent that after giving effect to such issuance after exercise as set forth on the applicable Notice of Exercise, the Holder (together with the Holder's Affiliates, and any other Persons acting as a group together with the Holder or any of the Holder's Affiliates (such Persons, "Attribution Parties")), would beneficially own in excess of the Beneficial Ownership Limitation (as defined below). For purposes of the foregoing sentence, the number of shares of Common Stock beneficially owned by the Holder and its Affiliates and Attribution Parties shall include the number of shares of Common Stock issuable upon exercise of this Warrant with respect to which such determination is being made, but shall exclude the number of shares of Common Stock which would be issuable upon (i) exercise of the remaining, nonexercised portion of this Warrant beneficially owned by the Holder or any of its Affiliates or Attribution Parties and (ii) exercise or conversion of the unexercised or nonconverted portion of any other securities of the Company (including, without limitation, any other Common Stock Equivalents) subject to a limitation on conversion or exercise analogous to the limitation contained herein beneficially owned by the Holder or any of its Affiliates or Attribution Parties. Except as set forth in the preceding sentence, for purposes of this Section 2(e), beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder, it being acknowledged by the Holder that the Company is not representing to the Holder that such calculation is in compliance with Section 13(d) of the Exchange Act and the Holder is solely responsible for any schedules required to be filed in accordance therewith. To the extent that the limitation contained in this Section 2(e) applies, the determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable shall be in the sole discretion of the Holder, and the submission of a Notice of Exercise shall be deemed to be the Holder's determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable, in each case subject to the Beneficial Ownership Limitation, and neither the Company nor the Warrant Agent shall have any obligation to verify or confirm the accuracy of such determination. In addition, a determination as to any group status as contemplated above shall be determined in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder. For purposes of this Section 2(e), in determining the number of outstanding shares of Common Stock, a Holder may rely on the number of outstanding shares of Common Stock as reflected in (A) the Company's most recent periodic or annual report filed with the Commission, as the case may be, (B) a more recent public announcement by the Company or (C) a more recent written notice by the Company or the Warrant Agent setting forth the number of shares of Common Stock outstanding. Upon the written or oral request of a Holder, the Company shall within two Trading Days confirm orally and in writing to the Holder the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of the Company, including this Warrant, by the Holder or its Affiliates or Attribution Parties since the date as of which such number of outstanding shares of Common Stock was reported. The "Beneficial Ownership Limitation" shall be 4.99% of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock issuable upon exercise of this Warrant. The Holder, upon notice to the Company, may increase or decrease the Beneficial Ownership Limitation provisions of this Section 2(e), provided that the Beneficial Ownership Limitation in no event exceeds 9.99% of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock upon exercise of this Warrant held by the Holder and the provisions of this Section 2(e) shall continue to apply. Any increase in the Beneficial Ownership Limitation will not be effective until the 61<sup>st</sup> day after such notice is delivered to the Company. The provisions of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 2(e) to correct this paragraph (or any portion hereof) which may be defective or inconsistent with the intended Beneficial Ownership Limitation herein contained or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitations contained in this paragraph shall apply to a successor holder of this Warrant.

Section 3. Certain Adjustments.

- a) Stock Dividends and Splits. If the Company, at any time while this Warrant is outstanding: (i) pays a stock dividend or otherwise makes a distribution or distributions on shares of its Common Stock or any other equity or equity equivalent securities payable in shares of Common Stock (which, for avoidance of doubt, shall not include any shares of Common Stock issued by the Company upon exercise of this Warrant), (ii) subdivides outstanding shares of Common Stock into a larger number of shares, (iii) combines (including by way of reverse stock split) outstanding shares of Common Stock into a smaller number of shares, or (iv) issues by reclassification of shares of the Common Stock any shares of capital stock of the Company, then in each case the Exercise Price shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock (excluding treasury shares, if any) outstanding immediately before such event and of which the denominator shall be the number of shares of Common Stock outstanding immediately after such event, and the number of shares issuable upon exercise of this Warrant shall be proportionately adjusted such that the aggregate Exercise Price of this Warrant shall remain unchanged. Any adjustment made pursuant to this Section 3(a) shall become effective immediately after the record date for the determination of stockholders entitled to receive such dividend or distribution and shall become effective immediately after the effective date in the case of a subdivision, combination or re-classification.
- b) Reserved.
- c) Subsequent Rights Offerings. In addition to any adjustments pursuant to Section 3(a) above, if at any time the Company grants, issues or sells any Common Stock Equivalents or rights to purchase stock, warrants, securities or other property pro rata to the record holders of any class of shares of Common Stock (the "Purchase Rights"), then the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the grant, issue or sale of such Purchase Rights (provided, however, to the extent that the Holder's right to participate in any such Purchase Right would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Purchase Right to such extent (or beneficial ownership of such shares of Common Stock as a result of such Purchase Right to such extent) and such Purchase Right to such extent shall be held in abeyance for the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).
- d) Pro Rata Distributions. During such time as this Warrant is outstanding, if the Company shall declare or make any dividend or other distribution of its assets (or rights to acquire its assets) to holders of shares of Common Stock, by way of return of capital or otherwise (including, without limitation, any distribution of cash, stock or other securities, property or options by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) (a "Distribution"), at any time after the issuance of this Warrant, then, in each such case, the Holder shall be entitled to participate in such Distribution to the same extent that the Holder would have participated therein if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date of which a record is taken for such Distribution, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the participation in such Distribution (provided, however, to the extent that the Holder's right to participate in any such Distribution would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Distribution to such extent (or in the beneficial ownership of any shares of Common Stock as a result of such Distribution to such extent) and the portion of such Distribution shall be held in abeyance for the benefit of the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation). To the extent that this Warrant has not been partially or completely exercised at the time of such Distribution, such portion of the Distribution shall be held in abeyance for the benefit of the Holder until the Holder has exercised this Warrant.

- e) Fundamental Transaction. If, at any time while this Warrant is outstanding, (i) the Company, directly or indirectly, in one or more related transactions effects any merger or consolidation of the Company with or into another Person, (ii) the Company, directly or indirectly, effects any sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of its assets in one or a series of related transactions, (iii) any, direct or indirect, purchase offer, tender offer or exchange offer (whether by the Company or another Person) is completed pursuant to which holders of Common Stock are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of 50% or more of the outstanding Common Stock, (iv) the Company, directly or indirectly, in one or more related transactions effects any reclassification, reorganization or recapitalization of the Common Stock or any compulsory share exchange pursuant to which the Common Stock is effectively converted into or exchanged for other securities, cash or property, or (v) the Company, directly or indirectly, in one or more related transactions consummates a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with another Person or group of Persons whereby such other Person or group acquires more than 50% of the outstanding shares of Common Stock (not including any shares of Common Stock held by the other Person or other Persons making or party to, or associated or affiliated with the other Persons making or party to, such stock or share purchase agreement or other business combination) (each a “Fundamental Transaction”), then, upon any subsequent exercise of this Warrant, the Holder shall have the right to receive, for each Warrant Share that would have been issuable upon such exercise immediately prior to the occurrence of such Fundamental Transaction, at the option of the Holder (without regard to any limitation in Section 2(e) on the exercise of this Warrant), the number of shares of Common Stock of the successor or acquiring corporation or of the Company, if it is the surviving corporation, and any additional consideration (the “Alternate Consideration”) receivable as a result of such Fundamental Transaction by a holder of the number of shares of Common Stock for which this Warrant is exercisable immediately prior to such Fundamental Transaction (without regard to any limitation in Section 2(e) on the exercise of this Warrant). For purposes of any such exercise, the determination of the Exercise Price shall be appropriately adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one share of Common Stock in such Fundamental Transaction, and the Company shall apportion the Exercise Price among the Alternate Consideration in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of Common Stock are given any choice as to the securities, cash or property to be received in a Fundamental Transaction, then the Holder shall be given the same choice as to the Alternate Consideration it receives upon any exercise of this Warrant following such Fundamental Transaction. The Company shall cause any successor entity in a Fundamental Transaction in which the Company is not the survivor (the “Successor Entity”) to assume in writing all of the obligations of the Company under this Warrant and the other Transaction Documents in accordance with the provisions of this Section 3(e) pursuant to written agreements prior to such Fundamental Transaction and shall, at the option of the Holder, deliver to the Holder in exchange for this Warrant a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Warrant which is exercisable for a corresponding number of shares of capital stock of such Successor Entity (or its parent entity) equivalent to the shares of Common Stock acquirable and receivable upon exercise of this Warrant (without regard to any limitations on the exercise of this Warrant) prior to such Fundamental Transaction, and with an exercise price which applies the exercise price hereunder to such shares of capital stock (but taking into account the relative value of the shares of Common Stock pursuant to such Fundamental Transaction and the value of such shares of capital stock, such number of shares of capital stock and such exercise price being for the purpose of protecting the economic value of this Warrant immediately prior to the consummation of such Fundamental Transaction), and which is reasonably satisfactory in form and substance to the Holder. Upon the occurrence of any such Fundamental Transaction, the Successor Entity shall succeed to, and be substituted for (so that from and after the date of such Fundamental Transaction, the provisions of this Warrant and the other Transaction Documents referring to the “Company” shall refer instead to the Successor Entity), and may exercise every right and power of the Company and shall assume all of the obligations of the Company under this Warrant and the other Transaction Documents with the same effect as if such Successor Entity had been named as the Company herein.
- f) Calculations. All calculations under this Section 3 shall be made to the nearest cent or the nearest 1/100th of a share, as the case may be. For purposes of this Section 3, the number of shares of Common Stock deemed to be issued and outstanding as of a given date shall be the sum of the number of shares of Common Stock (excluding treasury shares, if any) issued and outstanding.

g) Notice to Holder.

- i. Adjustment to Exercise Price. Whenever the Exercise Price is adjusted pursuant to any provision of this Section 3, the Company shall promptly deliver to the Holder by facsimile or email a notice setting forth the Exercise Price after such adjustment and any resulting adjustment to the number of Warrant Shares and setting forth a brief statement of the facts requiring such adjustment.
- ii. Notice to Allow Exercise by Holder. If (A) the Company shall declare a dividend (or any other distribution in whatever form) on the Common Stock, (B) the Company shall declare a special nonrecurring cash dividend on or a redemption of the Common Stock, (C) the Company shall authorize the granting to all holders of the Common Stock rights or warrants to subscribe for or purchase any shares of capital stock of any class or of any rights, (D) the approval of any stockholders of the Company shall be required in connection with any reclassification of the Common Stock, any consolidation or merger to which the Company is a party, any sale or transfer of all or substantially all of the assets of the Company, or any compulsory share exchange whereby the Common Stock is converted into other securities, cash or property, or (E) the Company shall authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of the Company, then, in each case, the Company shall cause to be delivered by facsimile or email to the Holder at its last facsimile number or email address as it shall appear upon the Warrant Register of the Company, at least 20 calendar days prior to the applicable record or effective date hereinafter specified, a notice stating (x) the date on which a record is to be taken for the purpose of such dividend, distribution, redemption, rights or warrants, or if a record is not to be taken, the date as of which the holders of the Common Stock of record to be entitled to such dividend, distributions, redemption, rights or warrants are to be determined or (y) the date on which such reclassification, consolidation, merger, sale, transfer or share exchange is expected to become effective or close, and the date as of which it is expected that holders of the Common Stock of record shall be entitled to exchange their shares of the Common Stock for securities, cash or other property deliverable upon such reclassification, consolidation, merger, sale, transfer or share exchange; provided that the failure to deliver such notice or any defect therein or in the delivery thereof shall not affect the validity of the corporate action required to be specified in such notice. To the extent that any notice provided in this Warrant constitutes, or contains, material, non-public information regarding the Company or any of the Subsidiaries, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K. The Holder shall remain entitled to exercise this Warrant during the period commencing on the date of such notice to the effective date of the event triggering such notice except as may otherwise be expressly set forth herein.

Section 4.       Transfer of Warrant.

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



- b) New Warrants. This Warrant may be divided or combined with other Warrants upon presentation hereof at the aforesaid office of the Company, together with a written notice specifying the names and denominations in which new Warrants are to be issued, signed by the Holder or its agent or attorney. Subject to compliance with Section 4(a), as to any transfer which may be involved in such division or combination, the Company shall execute and deliver a new Warrant or Warrants in exchange for the Warrant or Warrants to be divided or combined in accordance with such notice. All Warrants issued on transfers or exchanges shall be dated the initial issuance date of this Warrant and shall be identical with this Warrant except as to the number of Warrant Shares issuable pursuant thereto.
- c) Warrant Register. The Company shall register this Warrant, upon records to be maintained by the Company for that purpose (the “Warrant Register”), in the name of the record Holder hereof from time to time. The Company may deem and treat the registered Holder of this Warrant as the absolute owner hereof for the purpose of any exercise hereof or any distribution to the Holder, and for all other purposes, absent actual notice to the contrary.

Section 5. Miscellaneous.

- a) No Rights as Stockholder Until Exercise. This Warrant does not entitle the Holder to any voting rights, dividends or other rights as a stockholder of the Company prior to the exercise hereof as set forth in Section 2(d)(i), except as expressly set forth in Section 3.
- b) Loss, Theft, Destruction or Mutilation of Warrant. The Company covenants that upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of this Warrant or any stock certificate relating to the Warrant Shares, and in case of loss, theft or destruction, of indemnity or security reasonably satisfactory to it (which, in the case of the Warrant, so long as it is not in certificated format, shall not include the posting of any bond), and upon surrender and cancellation of such Warrant or stock certificate, if mutilated, the Company will make and deliver a new Warrant or stock certificate of like tenor and dated as of such cancellation, in lieu of such Warrant or stock certificate.
- c) Saturdays, Sundays, Holidays, etc. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall not be a Business Day, then, such action may be taken or such right may be exercised on the next succeeding Business Day.
- d) Authorized Shares. The Company covenants that, during the period the Warrant is outstanding, it will reserve from its authorized and unissued Common Stock a sufficient number of shares to provide for the issuance of the Warrant Shares upon the exercise of any purchase rights under this Warrant. The Company further covenants that its issuance of this Warrant shall constitute full authority to its officers who are charged with the duty of executing stock certificates to execute and issue the necessary Warrant Shares upon the exercise of the purchase rights under this Warrant. The Company will take all such reasonable action as may be necessary to assure that such Warrant Shares may be issued as provided herein without violation of any applicable law or regulation, or of any requirements of the Trading Market upon which the Common Stock may be listed. The Company covenants that all Warrant Shares which may be issued upon the exercise of the purchase rights represented by this Warrant will, upon exercise of the purchase rights represented by this Warrant and payment for such Warrant Shares in accordance herewith, be duly authorized, validly issued, fully paid and nonassessable and free from all taxes, liens and charges created by the Company in respect of the issue thereof (other than taxes in respect of any transfer occurring contemporaneously with such issue).

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

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

- e) Jurisdiction. This Warrant shall be governed by and construed and enforced in accordance with the laws of the State of New York, without giving effect to conflict of laws principles thereof. The Company hereby agrees that any action, proceeding or claim against it arising out of, or relating in any way to this Warrant shall be brought and enforced in the New York Supreme Court, County of New York, or in the United States District Court for the Southern District of New York located in the Borough of Manhattan in the City of New York, and irrevocably submits to such jurisdiction, which jurisdiction shall be exclusive. The Company hereby waives any objection to such exclusive jurisdiction and that such courts represent an inconvenient forum.
- f) Restrictions. The Holder acknowledges that the Warrant Shares acquired upon the exercise of this Warrant, if not registered, and the Holder does not utilize cashless exercise, will have restrictions upon resale imposed by state and federal securities laws.
- g) Nonwaiver and Expenses. No course of dealing or any delay or failure to exercise any right hereunder on the part of Holder shall operate as a waiver of such right or otherwise prejudice the Holder's rights, powers or remedies. Without limiting any other provision of this Warrant, if the Company willfully and knowingly fails to comply with any provision of this Warrant, which results in any material damages to the Holder, the Company shall pay to the Holder such amounts as shall be sufficient to cover any costs and expenses including, but not limited to, reasonable attorneys' fees, including those of appellate proceedings, incurred by the Holder in collecting any amounts due pursuant hereto or in otherwise enforcing any of its rights, powers or remedies hereunder.
- h) Notices. Any notice, request or other document required or permitted to be given or delivered to the Holder by the Company shall be delivered in accordance with the address set forth in the Warrant Register.
- i) Limitation of Liability. No provision hereof, in the absence of any affirmative action by the Holder to exercise this Warrant to purchase Warrant Shares, and no enumeration herein of the rights or privileges of the Holder, shall give rise to any liability of the Holder for the purchase price of any Common Stock or as a stockholder of the Company, whether such liability is asserted by the Company or by creditors of the Company.
- j) Remedies. The Holder, in addition to being entitled to exercise all rights granted by law, including recovery of damages, will be entitled to specific performance of its rights under this Warrant. The Company agrees that monetary damages would not be adequate compensation for any loss incurred by reason of a breach by it of the provisions of this Warrant and hereby agrees to waive and not to assert the defense in any action for specific performance that a remedy at law would be adequate.
- k) Successors and Assigns. Subject to applicable securities laws, this Warrant and the rights and obligations evidenced hereby shall inure to the benefit of and be binding upon the successors and permitted assigns of the Company and the successors and permitted assigns of Holder. The provisions of this Warrant are intended to be for the benefit of any Holder from time to time of this Warrant and shall be enforceable by the Holder or holder of Warrant Shares.

- l) Amendment. This Warrant may be modified or amended or the provisions hereof waived with the written consent of the Company and the Holder.
- m) Severability. Wherever possible, each provision of this Warrant shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Warrant shall be prohibited by or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provisions or the remaining provisions of this Warrant.
- n) Headings. The headings used in this Warrant are for the convenience of reference only and shall not, for any purpose, be deemed a part of this Warrant.
- o) Conflicts. In the event of a conflict between the terms of this Warrant and the Warrant Agency Agreement, the terms of the Warrant Agency Agreement shall govern.

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*(Signature Page Follows)*

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

TONIX PHARMACEUTICALS HOLDING CORP.

By: \_\_\_\_\_

Name:

Title:

**NOTICE OF EXERCISE**

TO: TONIX PHARMACEUTICALS HOLDING CORP.

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

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

in lawful money of the United States; or

if permitted the cancellation of such number of Warrant Shares as is necessary, in accordance with the formula set forth in subsection 2(c), to exercise this Warrant with respect to the maximum number of Warrant Shares purchasable pursuant to the cashless exercise procedure set forth in subsection 2(c).

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

\_\_\_\_\_

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

[SIGNATURE OF HOLDER]

Name of Investing Entity: \_\_\_\_\_

*Signature of Authorized Signatory of Investing Entity:* \_\_\_\_\_

Name of Authorized Signatory: \_\_\_\_\_

Title of Authorized Signatory: \_\_\_\_\_

Date: \_\_\_\_\_

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**ASSIGNMENT FORM**

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

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

Name: \_\_\_\_\_  
(Please Print)

Address: \_\_\_\_\_  
(Please Print)

Phone Number: \_\_\_\_\_

Email Address: \_\_\_\_\_

Dated: \_\_\_\_\_, \_\_\_\_\_

Holder's Signature: \_\_\_\_\_

Holder's Address: \_\_\_\_\_



**EXHIBIT 5.1**

October 26, 2016

Tonix Pharmaceuticals Holding Corp.  
509 Madison Avenue  
Suite 306  
New York, New York 10022

Re: Tonix Pharmaceuticals Holding Corp.'s Registration Statement on Form S-3

Ladies and Gentlemen:

We have acted as special counsel for Tonix Pharmaceuticals Holding Corp., a Nevada corporation (the "Company"), in connection with the preparation and filing of a Registration Statement on Form S-3 (File No. 333-197824) (the "Registration Statement") with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Securities Act"), and the rules and regulations promulgated thereunder, and declared effective by the Commission on August 15, 2014, the prospectus included therein (the "Base Prospectus") the prospectus supplement, dated October 25, 2016 filed with the Commission pursuant to Rule 424(b) of the rules and regulations of the Securities Act (the "Preliminary Prospectus"), and the prospectus supplement, dated October 26, 2016 filed with the Commission pursuant to Rule 424(b) of the rules and regulations of the Securities Act (collectively with the Base Prospectus and the Preliminary Prospectus, the "Prospectus").

The Prospectus pertains to an underwritten offering (the "Offering") pursuant to the Underwriting Agreement, dated October 26, 2016 (the "Underwriting Agreement"), between the Company and Dawson James Securities, Inc. (the "Underwriter") and relates to the issuance and sale by the Company of an aggregate amount of (i) 9,500,000 shares of the Company's common stock, par value \$0.001 per share (the "Common Shares") and (ii) warrants (the "Warrants") to purchase up to an aggregate of 4,750,000 shares of the Company's common stock (the "Warrant Shares"). The Company has agreed to issue common share purchase warrants (the "Underwriter's Warrants") to the Underwriter to purchase up to 475,000 shares of common stock (the "Underwriter Warrant Shares"). The Common Shares, the Warrants, the Warrant Shares, the Underwriter's Warrants and the Underwriter Warrant Shares (collectively, the "Securities") are covered by the Registration Statement.

We understand that the Securities are to be offered and sold in the manner as described in the Prospectus pursuant to the Underwriting Agreement filed as Exhibit 1.1 to the Current Report on Form 8-K to which this opinion is attached as Exhibit 5.1.

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In connection with this opinion, we have examined the Registration Statement and the Prospectus. We also have examined such corporate records, certificates and other documents and such questions of law as we have considered necessary or appropriate for the purpose of this opinion. We have assumed: (A) the genuineness and authenticity of all documents submitted to us as originals and (B) the conformity to originals of all documents submitted to us as copies thereof. As to certain factual matters, we have relied upon certificates of officers of the Company and have not sought independently to verify such matters.

Without limiting any of the other limitations, exceptions and qualifications stated elsewhere herein, we express no opinion with regard to the applicability or effect of the laws of any jurisdiction other than the Nevada Business Corporation Law (based solely upon our review of a standard compilation thereof) as in effect as of the date hereof. This opinion letter deals only with the specified legal issues expressly addressed herein, and you should not infer any opinion that is not explicitly stated herein from any matter addressed in this opinion letter.

Based on the foregoing, and subject to the assumptions, limitations and qualifications set forth herein, we are of the opinion that (i) the Common Shares as described in the Prospectus have been duly authorized, and, when issued and sold in the manner described in the Prospectus and in accordance with the terms and conditions of the Underwriting Agreement, the Common Shares will be validly issued, fully paid and non-assessable, (ii) the Warrants and Underwriter Warrants as described in the Prospectus have been duly authorized, and, provided that the Warrants and Underwriter Warrants have been duly executed by the Company and duly delivered to the purchasers thereof as described in the Prospectus, will be valid and legally binding obligations of the Company, enforceable against the Company in accordance with their terms, subject to bankruptcy, insolvency, fraudulent transfer, reorganization, moratorium and similar laws of general applicability relating to or affecting creditors' rights and to general equity principles, and (iii) the Warrant Shares and Underwriter Warrant Shares have been duly authorized and when issued and delivered by the Company against payment therefor in accordance with the terms of the Warrants or Underwriter Warrants, as applicable, will be validly issued, fully paid and non-assessable.

We hereby consent to your filing this opinion as an exhibit to a Current Report on Form 8-K to be incorporated by reference in the Registration Statement and to the use of our name under the caption "Legal Matters" in the Prospectus. Our consent shall not be deemed an admission that we are experts whose consent is required under Section 7 of the Securities Act of 1933, as amended, or the rules and regulations of the Securities and Exchange Commission thereunder.

Very truly yours,

/s/ Sichenzia Ross Ference Kesner LLP  
Sichenzia Ross Ference Kesner LLP

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## **Tonix Pharmaceuticals Announces Proposed Underwritten Public Offering of Common Stock and Warrants**

NEW YORK – Oct. 25, 2016 – Tonix Pharmaceuticals Holding Corp. (Nasdaq: TNXP) (Tonix), today announced that it intends to offer shares of its common stock and warrants to purchase common stock in an underwritten public offering. The offering is subject to market and other conditions, and there can be no assurance as to whether or when the offering may be completed, or as to the actual size or terms of the offering.

Dawson James Securities, Inc. is acting as the sole book-running manager for the offering. Tonix expects to use the net proceeds of the offering to support the continued development of TNX-102 SL (cyclobenzaprine HCl sublingual tablets) for the treatment of posttraumatic stress disorder (PTSD), including completion of the first interim analysis in the phase 3 study in military-related PTSD, to further develop other pipeline programs, for working capital and other general corporate purposes, and possibly acquisitions of other companies, products or technologies, though no such acquisitions are currently contemplated.

The securities described above are being offered by Tonix pursuant to a shelf registration statement on Form S-3 previously filed with the Securities and Exchange Commission (SEC) and subsequently declared effective on August 15, 2014. A preliminary prospectus supplement relating to the offering is being filed with the SEC and, once filed, will be available on the SEC's website at <http://www.sec.gov>.

This press release shall not constitute an offer to sell or the solicitation of an offer to buy any of the securities described herein, nor shall there be any sale of these securities in any state or jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such state or jurisdiction. Copies of the preliminary prospectus supplement and accompanying base prospectus relating to the offering may be obtained from Dawson James Securities, Inc., Attention: Prospectus Department, 1 North Federal Highway, 5<sup>th</sup> Floor, Boca Raton, FL 33432, [mmaclaren@dawsonjames.com](mailto:mmaclaren@dawsonjames.com) or toll free at (866) 928-0928.

### **About Tonix Pharmaceuticals Holding Corp.**

Tonix is developing next-generation medicines for common disorders of the central nervous system, with its lead program focusing on posttraumatic stress disorder. This disorder is characterized by chronic disability, inadequate treatment options, high utilization of healthcare services, and significant economic burden. This press release and further information about Tonix can be found at [www.tonixpharma.com](http://www.tonixpharma.com).

### **Safe Harbor / Forward-Looking Statements**

*Certain statements in this press release are forward-looking within the meaning of the Private Securities Litigation Reform Act of 1995. These statements may be identified by the use of forward-looking words such as "anticipate," "believe," "forecast," "estimate," "expect," and "intend," among others. Forward-looking statements include Tonix's ability to conduct and complete a public offering of its securities (including the anticipated size and closing date of the offering). These forward-looking statements are based on Tonix's current expectations and actual results could differ materially. There are a number of factors that could cause actual events to differ materially from those indicated by such forward-looking statements. These factors include, but are not limited to, substantial competition; our need for additional financing; uncertainties of patent protection and litigation; uncertainties of government or third party payor reimbursement; limited research and development efforts and dependence upon third parties; and risks related to failure to obtain FDA clearances or approvals and noncompliance with FDA regulations. As with any pharmaceutical under development, there are significant risks in the development, regulatory approval and commercialization of new products. Tonix does not undertake an obligation to update or revise any forward-looking statement. Investors should read the risk factors set forth in the Annual Report on Form 10-K for the year ended December 31, 2015, as filed with the Securities and Exchange Commission (the "SEC") on March 3, 2016, and future periodic reports filed with the SEC on or after the date hereof. All of Tonix's forward-looking statements are expressly qualified by all such risk factors and other cautionary statements. The information set forth herein speaks only as of the date hereof.*

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Source: Tonix Pharmaceuticals Holding Corp.

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### **Tonix Pharmaceuticals Prices \$5.2 Million Underwritten Public Offering**

NEW YORK – Oct. 26, 2016 – Tonix Pharmaceuticals Holding Corp. (NASDAQ: TNXP) (Tonix), today announced the pricing of an underwritten public offering of 9,500,000 units, consisting of 9,500,000 shares of common, and warrants to purchase an aggregate of 4,750,000 shares of common stock, at an offering price of \$0.55 per unit. The warrants have an exercise price of \$0.63 per share and are exercisable for a period of five years. Tonix has also granted to the underwriters a 45-day option to acquire an additional 1,425,000 shares of common stock, and warrants to purchase up to an aggregate of 712,500 shares of common stock to cover over-allotments in connection with the offering.

The gross proceeds to Tonix from this offering are approximately \$5.2 million before deducting the underwriting discount and estimated offering expenses payable by the company, assuming no exercise of the overallotment option. The offering is expected to close on or about October 31, 2016, subject to customary closing conditions.

Dawson James Securities, Inc. is acting as the sole book-running manager for the offering. Tonix expects to use the net proceeds of the offering to support the continued development of TNX-102 SL (cyclobenzaprine HCl sublingual tablets) for the treatment of posttraumatic stress disorder (PTSD), including completion of the first interim analysis in the phase 3 study in military-related PTSD, to further develop other pipeline programs, for working capital and other general corporate purposes, and possibly acquisitions of other companies, products or technologies, though no such acquisitions are currently contemplated.

The securities described above are being offered by Tonix pursuant to a registration statement previously filed with and subsequently declared effective by the Securities and Exchange Commission ("SEC"). A final prospectus supplement relating to the offering will be filed with the SEC and, once filed, will be available on the SEC's website at <http://www.sec.gov>. Copies of the preliminary prospectus supplement and accompanying base prospectus relating to the offering may be obtained from Dawson James Securities, Inc., Attention: Prospectus Department, 1 North Federal Highway, 5<sup>th</sup> Floor, Boca Raton, FL 33432, [mmaclaren@dawsonjames.com](mailto:mmaclaren@dawsonjames.com) or toll free at (866) 928-0928.

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

#### **About Tonix Pharmaceuticals Holding Corp.**

Tonix is developing next-generation medicines for common disorders of the central nervous system, with its lead program focusing on posttraumatic stress disorder. This disorder is characterized by chronic disability, inadequate treatment options, high utilization of healthcare services, and significant economic burden. This press release and further information about Tonix can be found at [www.tonixpharma.com](http://www.tonixpharma.com).

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Source: Tonix Pharmaceuticals Holding Corp.

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