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

FORM 8-K

Current Report

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

Date of Report (Date of earliest event reported): April 7, 2016

RESPIRERX PHARMACEUTICALS INC.
(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction
of incorporation)

1-16467
(Commission
File Number)

33-0303583
(I.R.S Employer
Identification No.)

126 Valley Road, Suite C
Glen Rock, New Jersey
(Address of principal executive offices)

07452
(Zip Code)

Registrant's telephone number, including area code: (201) 444-4947

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

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

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

On April 7, 2016, RespireRx Pharmaceuticals Inc. (the “Company”) entered into an Exchange Agreement (the “Unit Exchange Agreement”) with James S. J. Manuso, Ph.D., its President and Chief Operating Officer, whereby Dr. Manuso exchanged the Warrant to purchase up to 23,775,558 shares of the Company’s Common Stock (the “Exchanged Warrant”) that he had obtained in the Company’s offering (the “Unit Offering”) on August 28, 2015 and cash in the amount of \$178,317 for 11,887,779 shares of the Company’s Common Stock, par value \$0.001 (“Common Stock”) and a new warrant (the “New Warrant”). The Unit Offering, was entered into with several accredited investors (each a “Unit Offering Purchaser”) during the period from August through November 2015, and involved the sale of units, with each unit consisting of (i) one share of the Company’s Common Stock, and (ii) one Warrant to purchase two additional shares of Common Stock (each a “Warrant” and collectively, the “Warrants”). Those Warrants are exercisable until 5:00 p.m. on September 30, 2020 and may be exercised at the Per Unit Price of \$0.02103 for each share of Common Stock to be acquired upon exercise. A copy of the Purchase Agreement, including the form of Warrant, used in the Unit Offering was filed by the Company as Exhibit 10.1 to its Current Report on Form 8-K filed August 31, 2015.

The New Warrant provides for the purchase of up to 11,887,779 shares of Common Stock, half as many shares of Common Stock as the Exchanged Warrant, has the same expiration date as the Exchanged Warrant of September 2020, and may be exercised at a price of \$0.015 for each share of Common Stock. The New Warrant also permits cashless exercise. Like the Exchanged Warrant, in the case of an acquisition in which the Company is not the surviving entity, the holder of the New Warrant would receive from any surviving entity or successor to the Company, in exchange for the New Warrant, a replacement warrant from the surviving entity or successor to the Company, substantially in the form of the existing New Warrant and with an exercise price adjusted to reflect the nearest equivalent exercise price of common stock (or other applicable equity interest) of the surviving entity that would reflect the economic value of the New Warrant, but in the surviving entity.

This description of the Unit Exchange Agreement and the New Warrant does not purport to be complete and is qualified in its entirety by reference to the form of Unit Exchange Agreement (including the Form of New Warrant attached as Exhibit A thereto), a copy of which is attached to this Current Report on Form 8-K as Exhibit 10.1 and is incorporated herein by reference. The Company may subsequently enter into similar exchanges with other holders of Warrants issued in the Unit Offering, though no assurance can be provided that this will occur.

On April 8, 2016, the Company entered into Exchange Agreements (each a “Note Exchange Agreement”) with certain Note Offering Purchasers (as defined below) whereby the Note Offering Purchasers exchanged the 10% Convertible Notes (“Notes”), Warrants issued in connection therewith (“Note Offering Warrants”) and extension warrants issued in connection thereto (“Extension Warrants” and, together with the Notes and the Note Offering Warrants, the “Securities”), that such Note Offering Purchasers had obtained in or in connection with the Company’s offering (the “Note Offering”) on November 5, 2014 and cash in the amount of \$32,805 in the aggregate, for an aggregate of 5,130,336 shares of the Company’s Common Stock. In the aggregate, \$48,837 principal amount and accrued interest of Notes, Note Offering Warrants to purchase 1,214,286 shares of Common Stock and Extension Warrants to purchase 660,268 shares of Common Stock were exchanged and cancelled as a result of these transactions. The Note Offering, was entered into with several accredited investors (each a “Note Offering Purchaser”) during the period from November 2014 through February 2015, and involved the sale of Notes and Note Offering Warrants. The Notes initially matured and Note Offering Warrants were initially exercisable through September 15, 2015; however, on August 13, 2015, the Company elected, pursuant to the terms of the Notes, to extend the maturity date of the Notes to September 15, 2016, and to issue the Extension Warrants on and as of September 15, 2015. Concurrently with that election, the Company extended the term of the Note Offering Warrants to September 15, 2016. A copy of the Purchase Agreement, including the form of Note and form of Warrant, used in the Note Offering was filed by the Company as Exhibit 10.1 to its Current Report on Form 8-K filed November 12, 2014.

This description of the Note Exchange Agreements does not purport to be complete and is qualified in its entirety by reference to the form of Note Exchange Agreement, a copy of which is attached to this Current Report on Form 8-K as Exhibit 10.2 and is incorporated herein by reference. The Company may subsequently enter into similar exchanges with other holders of Securities issued in and in connection with the Note Offering, though no assurance can be provided that this will occur.

The shares of Common Stock and the New Warrant issued in exchange for Exchanged Warrant and cash, and the shares of Common Stock issued in exchange for the Securities and cash were offered and exchanged without registration under the Securities Act of 1933, as amended (the "Securities Act") in reliance on the exemptions provided by Section 4(a)(2) of the Securities Act as provided in Rule 506(b) of Regulation D promulgated thereunder. None of the shares of Common Stock issued in the exchanges described above, the New Warrant, or the Common Stock issuable upon exercise of the New Warrant have been registered under the Securities Act or any other applicable securities laws, and unless so registered, may not be offered or sold in the United States except pursuant to an applicable exemption from the registration requirements of the Securities Act.

Item 3.02 Unregistered Sales of Equity Securities.

The information provided in response to Item 1.01 of this report is incorporated by reference into this Item 3.02. The purchasers of shares of Common Stock and New Warrant sold in the exchanges described above made representations to the Company that they met the accredited investor definition of Rule 501 of the Securities Act, and the Company relied on such representations. The offer and sale of the shares of Common Stock and New Warrant in the exchanges were made in reliance on the exemption from registration afforded by Section 4(a)(2) of the Securities Act as provided in Rule 506(b) of Regulation D promulgated thereunder. The offering of the shares of Common Stock and New Warrant in the exchanges were made to existing security holders of the Company and were not conducted in connection with a public offering, and no public solicitation or advertisement was made or relied upon by any investor in connection with the offering. This Current Report on Form 8-K shall not constitute an offer to sell or the solicitation of an offer to buy, nor shall such securities be offered or sold in the United States absent registration or an applicable exemption from the registration requirements.

Item 9.01 Financial Statements and Exhibits

(d) Exhibits.

A list of exhibits required to be filed as part of this report is set forth in the Exhibit Index, which is presented elsewhere in this document, and is incorporated herein by reference.

Cautionary Statement

Statements in this report that are “forward-looking statements” within the meaning of the federal securities laws, including the Company’s expectations and beliefs about its recording of revenue and the effects of any misreporting on its financial statements, are based on currently available information. Terminology such as “believe,” “expect,” “intend,” “estimate,” “project,” “anticipate,” “will” or similar statements or variations of such terms are intended to identify forward-looking statements, although not all forward-looking statements contain such terms. These forward-looking are subject to a number of risks, uncertainties and other factors that could cause the Company’s actual results, performance, prospects or opportunities in 2016 and beyond to differ materially from those expressed in, or implied by, these forward-looking statements. These risks include the risks referenced in the Company’s current Annual Report on Form 10-K or as may be described from time to time in the Company’s subsequent filings with the United States Securities and Exchange Commission; and such factors are incorporated by reference herein.

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

Date: April 11, 2016

RESPIRERX PHARMACEUTICALS INC.
(Registrant)

By: /s/ James S. J. Manuso
James S. J. Manuso
President and Chief Executive Officer

EXHIBIT INDEX

Exhibit Number	Exhibit Description
10.1	Form of Unit Exchange Agreement (including the Form of Warrant).
10.2	Form of Note Exchange Agreement.

EXCHANGE AGREEMENT

_____ (the “**Holder**”) enters into this Agreement (the “**Agreement**”) with RespireRx Pharmaceuticals Inc. (formerly known as Cortex Pharmaceuticals, Inc.), a Delaware corporation (the “**Company**”) on [____], 2016, whereby Holder will exchange warrants and cash for shares of common stock of the Company and new warrants (the “**Exchange**”).

RECITALS

WHEREAS, the Holder is the holder of Warrant Number ____ (the “**Existing Warrant**”) to purchase up to _____ shares of the Company’s Common Stock (the “**Common Stock**”);

WHEREAS, the Holder wishes to exchange the Existing Warrant and pay cash to obtain _____ shares of Common Stock and a new warrant to purchase up to _____ shares of Common Stock (the “**New Warrant**”), with such new warrant to be substantially in the form set out in Exhibit A hereto;

NOW, THEREFORE, in consideration of the mutual covenants and agreements hereinafter set forth and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and on and subject to the terms and conditions set forth in this Agreement, the parties hereto agree as follows:

1. *The Exchange.*

(a) *Exchange of Existing Warrant and Cash for Shares and New Warrant.* At the Closing (as defined herein), the Holder agrees to exchange the Existing Warrant and deliver and transfer all right, title and interest in the Existing Warrant to the Company and to deliver to the Company by wire transfer of immediately available funds in accordance with the Company’s instructions cash in an amount of \$_____ (the “**Cash Amount**”), and in exchange therefor, the Company hereby agrees to issue the Holder _____ shares of Common Stock (the “**Shares**”) and the New Warrant. References to an “Exhibit” or “Schedule” are references to an Exhibit or Schedule attached to this Agreement unless otherwise specified. References to a “Section” are references to a Section of this Agreement unless otherwise specified.

(b) *Closing and Delivery.* The Exchange shall take place at a closing (the “**Closing**”) to be held at such place and time as the Company and the Holder shall mutually determine (the “**Closing Date**”). At the Closing, the Holder shall assign and transfer all right, title and interest in and to its Existing Warrant to the Company and the Company will deliver to the Holder the Shares and the New Warrant registered in such Holder’s name, against receipt by the Company of the Holder’s Existing Warrant and the Cash Amount for the account of the Company by wire transfer of immediately available funds in accordance with the Company’s instructions. The cash proceeds of the Exchange shall be used by the Company in connection with research and development, general and administrative purposes and working capital. The Closing shall take place no later than June 30, 2015.

(c) *Acceptance by the Company.* This Agreement shall be deemed to be accepted by the Company only when it is signed by a duly authorized officer of the Company and delivered to the Holder at the Closing referred to in **Section 1(b)** hereof.

2. Covenants, Representations and Warranties of the Company. The Company hereby covenants as follows and, except as set forth on **Schedule I** hereto, makes the following representations and warranties, each of which is and shall be true and correct on the date hereof and, in all material respects, at the Closing Date, to the Holder, and all such covenants, representations and warranties shall survive the Closing.

(a) *Due Incorporation; Qualification.* The Company (i) is a corporation duly organized, validly existing and in good standing under the laws of its jurisdiction of organization; (ii) has the power and authority to own, lease and operate its properties and carry on its business as now conducted; and (iii) is duly qualified, licensed to do business and in good standing as a foreign corporation in each jurisdiction where such qualification or license is required by law, other than those jurisdictions as to which the failure to be so qualified or in good standing could not reasonably be expected to have a material adverse effect on the Company and its subsidiaries taken as a whole.

(b) *Authority; Enforceability.* The execution, delivery and performance by the Company of this Agreement and the New Warrant (each a “**Transaction Document**” and collectively, the “**Transaction Documents**”) and the consummation of the Exchange (i) are within the corporate power of the Company and (ii) have been duly authorized by all necessary corporate action on the part of the Company. Each Transaction Document executed by the Company has been duly executed and delivered by the Company and constitutes a legal, valid and binding obligation of the Company, enforceable against the Company in accordance with its terms, except as limited by bankruptcy, insolvency, reorganization, moratorium or other similar laws relating to or affecting the enforcement of creditors’ rights generally and general principles of equity (regardless of whether such enforceability is considered in a proceeding in equity or at law).

(c) *Non-Contravention.* The execution and delivery by the Company of the Transaction Documents executed by the Company and the performance and consummation of the transactions contemplated thereby do not (i) violate the Company’s Certificate of Incorporation, Bylaws or other formation or charter documents, as applicable (as amended, the “**Charter Documents**”), (ii) violate any material judgment, order, writ, decree, statute, rule or regulation applicable to the Company; (iii) result in the breach of any material provision of or in the acceleration of, or entitle any other person to accelerate (whether after the giving of notice or lapse of time or both), any material mortgage, indenture, agreement, instrument or contract to which the Company is a party or by which it is bound; or (iv) result in the creation or imposition of any lien or encumbrance upon any property, asset or revenue of the Company under any material agreement or instrument to which the Company is bound.

(d) *Litigation.* No actions (including, without limitation, derivative actions), suits, proceedings or investigations are pending or, to the knowledge of the Company, threatened in writing against the Company or the Company’s subsidiaries, if any, at law or in equity in any court or before any other governmental authority.

(e) *Title.* The Company and the Company’s subsidiaries own and have good and marketable title in fee simple absolute to, or a valid leasehold in, all their respective real properties, if any, and good title to their other respective assets and properties. Such assets and properties are subject to no liens or encumbrances.

(f) *Intellectual Property.* The Company and the Company's subsidiaries own or possess sufficient legal rights to all patents, trademarks, service marks, trade names, copyrights, trade secrets, licenses, information, processes and other intellectual property rights necessary for its business as now conducted and as proposed to be conducted, without any conflict with, or infringement of, the rights of others. Since March 22, 2013, each employee of the Company has executed, or will execute, a confidential information and invention assignment agreement in favor of the Company. Since March 22, 2013, the Company has entered into, or intends to enter into, an agreement containing appropriate confidentiality and invention assignment provisions in favor of the Company with each consultant to the Company that has or will have access to the Company's intellectual property.

(g) *Debt for Borrowed Money.* As of the date of this Agreement, the Company does not have any outstanding debt for borrowed money, other than as disclosed on **Schedule I**.

(h) *Exchange.* The terms of the Exchange are the result of negotiations among the parties and their agents.

3. ***Covenants, Representations and Warranties of the Holder.*** The Holder hereby covenants as follows and makes the following representations and warranties, each of which is and shall be true and correct on the date hereof and at the Closing, to the Company, and all such covenants, representations and warranties shall survive the Closing.

(a) *Binding Obligation.* Holder has full legal capacity, power and authority to execute and deliver this Agreement and to perform its obligations hereunder. This Agreement has been duly executed and delivered by the Holder and constitutes a legal, valid and binding obligation of the Holder, enforceable in accordance with its terms, except as limited by bankruptcy, insolvency, reorganization, moratorium or other similar laws relating to or affecting the enforcement of creditors' rights generally and general principles of equity (regardless of whether such enforceability is considered in a proceeding in equity or at law).

(b) *Title to the Existing Warrant.* The Holder is, and on the date of the Closing will be, the sole legal and beneficial owner of the Existing Warrant free and clear of any mortgage, lien, pledge, charge, security interest, encumbrance, title retention agreement, option, equity or other adverse claim thereto created by the Holder.

(c) *Securities Law Compliance.* The Holder has been advised that the Shares, New Warrant and the Common Stock underlying the New Warrant have not been registered under the Securities Act of 1933, as amended (the "**Securities Act**"), or any state securities laws, and therefore, cannot be resold unless they are registered under the Securities Act and applicable state securities laws unless an applicable exemption from such registration requirements is available. The Holder has not been formed solely for the purpose of making this investment and is entering into this Agreement and acquiring the Shares and New Warrant for its own account for investment, not as a nominee or agent, and not with a view to, or for resale in connection with, the distribution of thereof. The Holder has no present intention of selling, granting any participation in, or otherwise distributing the same and Holder does not have any contract, undertaking, agreement or arrangement with any person to sell, transfer, grant any participation in or otherwise distribute all or any part of the Shares or New Warrant. The Holder acknowledges that the Shares will not be freely transferable upon receipt. The Holder has such knowledge and experience in financial and business matters that the Holder is capable of evaluating the merits and risks of such investment, is able to incur a complete loss of such investment without impairing the Holder's financial condition and is able to bear the economic risk of such investment for an indefinite period of time. The Holder is an accredited investor as such term is defined in Rule 501 of Regulation D under the Securities Act.

(d) *Adequate Information; No Reliance.* The Holder acknowledges and agrees that (a) the Holder has been furnished with all materials the Holder considers relevant to making an investment decision to enter into this Agreement and effectuate the Exchange and has had the opportunity to review (and has carefully reviewed) (i) the Company's filings and submissions with the Securities and Exchange Commission (the "SEC"), including, without limitation, all information filed or furnished pursuant to the United States Securities and Exchange Act of 1934, as amended (collectively, the "Public Filings"), and (ii) this Agreement, (b) the Holder has had an opportunity to submit questions to the Company concerning the Company, its business, operations, financial performance, financial condition and prospects, and the terms and conditions of the Exchange, and has all information that it considers necessary in making an informed investment decision and to verify the accuracy of the information set forth in the Public Filings and this Agreement, (c) the Holder has had the opportunity to consult with accounting, tax, financial and legal advisors of its choosing to be able to evaluate the risks involved in the Exchange and to make an informed investment decision with respect to such Exchange, (d) the Holder is not relying, and has not relied, upon any statement, advice (whether accounting, tax, financial, legal or other), representation or warranty made by the Company or any of its affiliates or representatives or any other entity or person, except for (A) the Public Filings, (B) this Agreement and (C) the representations and warranties made by the Company in this Agreement, and (e) no statement or written material contrary to the Public Filings or this Agreement has been made or given to the Holder by or on behalf of the Company.

(e) *No Publicity.* The Holder acknowledges that it has a pre-existing relationship with the Company and that it has not approached the Company about this Exchange as the result of any public offering. Neither the Company nor any other person has approached the Holder about this Exchange by means of any form of general solicitation or advertising.

(f) *Confidentiality.* The Holder has complied with its confidentiality undertaking as acknowledged by an email from a representative of the Company to the Holder on April __, 2016.

(g) *Source of Funds.* The Holder represents that, as to the source of funds ("Source") to be used by the Holder to pay the Cash Amount, the Source does not include assets of any employee benefit plan, other than a plan exempt from the coverage of the Employee Retirement Income Security Act of 1974, as amended from time to time, and the rules and regulations promulgated thereunder from time to time in effect.

(h) *Further Action.* The Holder agrees that it will, upon request, execute and deliver any additional documents deemed by the Company to be necessary or desirable to complete the Exchange.

(i) *Exchange.* The terms of the Exchange are the result of negotiations among the parties and their agents.

4. **Conditions to Closing of the Holder.** The Holder's obligations at the Closing are subject to the fulfillment, on or prior to the applicable Closing Date, of all of the following conditions:

(a) *Representations and Warranties.* The representations and warranties made by the Company in **Section 2** hereof, in each case except as modified by **Schedule I**, shall have been true and correct when made, and shall be true and correct in all material respects on the Closing Date.

(b) *Governmental Approvals and Filings.* Except for any notices required or permitted to be filed after the applicable Closing Date with certain federal and state securities commissions, the Company shall have obtained all governmental approvals required in connection with the lawful sale and issuance of the Shares and the New Warrant.

(c) *Legal Requirements.* On the Closing Date, the Exchange, including the sale and issuance by the Company, and the purchase by the Holder, of the Shares and the New Warrant shall be legally permitted by all laws and regulations to which the Holder and the Company are subject.

(d) *Transaction Documents.* The Company shall have duly executed and delivered to the Holder the following documents: (i) this Agreement and (ii) the Shares and the New Warrant.

5. **Conditions to Obligations of the Company.** The Company's obligation to effectuate the Exchange and to issue and sell the Shares and the New Warrant to the Holder at the Closing, is subject to the fulfillment, on or prior to the applicable Closing Date, of all of the following conditions:

(a) *Representations and Warranties.* The representations and warranties made by the Holder in **Section 3** hereof shall be true and correct when made, and shall be true and correct on the Closing Date.

(b) *Legal Requirements.* On the Closing Date, the Exchange, including the sale and issuance by the Company, and the purchase by the Holder, of the Shares and the New Warrant shall be legally permitted by all laws and regulations to which the Holder and the Company are subject.

(c) *Transaction Documents.* The Holder shall have delivered to the Company the Existing Warrant and the Cash Amount and shall have duly executed and delivered to the Company (i) this Agreement and (ii) an acceptance by the Holder of the Shares and the New Warrant.

6. **Miscellaneous.**

(a) *Waivers; Amendments.* Any provision of this Agreement may be amended, waived or modified only upon the written consent of the Company and the Holder.

(b) *Governing Law.* This Agreement and all actions arising out of or in connection with this Agreement shall be governed by and construed in accordance with the laws of the State of New York, without regard to the conflicts of law provisions of the State of New York or of any other state.

(c) *Survival.* The representations, warranties, covenants and agreements made herein shall survive the execution and delivery of this Agreement.

(d) *Successors and Assigns.* Subject to the restrictions on transfer described in **Section 6(e)** below, the rights and obligations of the Company and the Holder shall be binding upon and benefit the successors, assigns, heirs, administrators and transferees of the parties.

(e) *Assignment.* The rights, interests or obligations hereunder and under the New Warrant may not be assigned, by operation of law or otherwise, in whole or in part, by the Company without the prior written consent of the Holder. The rights, interests or obligations hereunder and under the New Warrant may not be assigned by the Holder without the prior written consent of the Company.

(f) *Entire Agreement.* This Agreement together with the other Transaction Documents constitute and contain the entire agreement and understanding between the Company and the Holder with respect to the subject matter hereof and supersede any and all prior and contemporaneous agreements, negotiations, correspondence, understandings and communications between or among the parties or any of their agents, representatives or affiliates, whether written or oral, respecting the subject matter hereof.

(g) *Notices.* All notices, demands, consents, or other communications hereunder shall in writing and faxed, mailed or delivered to each party as follows: (i) if to the Holder, at the Holder's address or facsimile number set forth on the signature page hereto, or at such other address as the Holder shall have furnished the Company in writing in accordance with this paragraph, or (ii) if to the Company, at such address or fax number set forth on the signature page hereto, or at such other address or facsimile number as the Company shall have furnished to the Holder in writing in accordance with this paragraph. All such communications will be deemed effectively given the earlier of (i) when received, (ii) when delivered personally, (iii) one business day after being delivered by facsimile (with receipt of appropriate confirmation), (iv) one business day after being deposited with an overnight courier service of recognized standing, or (v) four days after being deposited in the U.S. mail, first class with postage prepaid.

(h) *Expenses.* Each of the Company and the Holder will bear their own respective expenses associated with the negotiation, execution and delivery of this Agreement and the consummation of the Exchange.

(i) *Only Company Liable.* In no event shall any stockholder, officer, director or employee of the Company be liable for any amounts due or payable pursuant to any Transaction Document.

(j) *Severability.* If any provision of this Agreement shall be judicially determined to be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

(k) *Headings.* Headings used in this Agreement have been included for convenience and ease of reference only, and will not in any manner influence the construction or interpretation of any provision of this Agreement. Neither party, nor its respective counsel, shall be deemed the drafter of this Agreement for purposes of construing the provisions of this Agreement, and all language in all parts of this Agreement shall be construed in accordance with its fair meaning, and not strictly for or against either party.

(l) *Counterparts.* This Agreement may be executed in one or more counterparts, each of which will be deemed an original, but all of which together will constitute one and the same agreement. Facsimile copies of signed signature pages will be deemed binding originals.

(m) *Termination.* The Company may terminate this Agreement if there has occurred any breach or withdrawal by the Holder of any covenant, representation or warranty set forth in **Section 3**. The Holder may terminate this Agreement if there has occurred any breach or withdrawal by the Company of any covenant, representation or warranty set forth in **Section 2**.

(Signature Page Follows)

The parties have caused this Agreement to be duly executed and delivered by their proper and duly authorized officers as of the date and year first written above.

COMPANY:

RESPIRERX PHARMACEUTICALS INC.

a Delaware corporation

By: _____

Name:

Title:

Address for notices:

RespireRx Pharmaceuticals Inc.

Attention: _____

126 Valley Road, Suite C

Glen Rock, NJ 07452

(phone): _____

(fax): _____

HOLDER:

[HOLDER NAME (IF ENTITY)]

By: _____ (signature)

Print Name:

Print Title:

Address for notices:

(phone): _____

(fax): _____

SCHEDULE I

EXCEPTIONS TO REPRESENTATIONS AND WARRANTIES

Convertible Notes

The Company is obligated under Convertible Notes issued from November 5, 2014 through and including February 2, 2015, aggregating principal amounts totaling \$579,500 and bearing interest of 10% per annum and maturing on September 15, 2016.

Notes

The Company is obligated under two demand promissory notes of \$52,600 each for a total of \$105,200 to James S. Manuso, the Company's President and CEO and Vice Chairman and Arnold S. Lippa, the Company's Chief Scientific Officer and Chairman. Each note is payable on demand and bears interest at a rate equal to 10% per annum, with any accrued but unpaid interest added to principal at the end of each year that the balance is outstanding. Each note grants a security interest in the assets of the Company, subject to certain conditions as set forth therein. These demand promissory notes are described in a Form 8-K filed with the Securities and Exchange Commission on February 3, 2016.

Samyang Documents

Permitted liens include the liens granted to Samyang Optics Co., Ltd. (now known as SY Corporation, Co., Ltd.) ("**Samyang**") and its successors and assigns under that certain Securities Purchase Agreement, dated as of June 25, 2012, between the Company and Samyang and any documents delivered in connection therewith (as amended, restated or otherwise modified from time to time, collectively, the "**Samyang Documents**"). The indebtedness pursuant to the Samyang Documents and all transactions contemplated in connection with the Samyang Documents are permitted hereunder. The Company is in default of certain of the Samyang Documents, as more fully set forth in the Company's filings with the U.S. Securities and Exchange Commission.

Trade Accounts

From time to time, the Company has obligations in respect of trade accounts payable.

The Company has certain obligations in respect of claims by one prior employee and certain prior advisors. Payments with respect to certain of those obligations are due at the end of December 2015.

EXHIBIT A

FORM OF NEW WARRANT

NEITHER THIS WARRANT NOR THE SECURITIES ISSUABLE UPON EXERCISE HEREOF HAVE BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED, OR ANY APPLICABLE STATE SECURITIES LAW, AND NO INTEREST HEREIN OR THEREIN MAY BE SOLD, DISTRIBUTED, ASSIGNED, OFFERED, PLEDGED OR OTHERWISE TRANSFERRED UNLESS (A) THERE IS AN EFFECTIVE REGISTRATION STATEMENT UNDER SUCH ACT AND APPLICABLE STATE SECURITIES LAWS COVERING ANY SUCH TRANSACTION, (B) THE COMPANY RECEIVES AN OPINION OF COUNSEL FOR THE HOLDER OF SUCH SECURITIES (CONCURRED IN BY COUNSEL FOR THE COMPANY) THAT SUCH TRANSACTION IS EXEMPT FROM REGISTRATION, OR (C) THE COMPANY OTHERWISE SATISFIES ITSELF THAT SUCH TRANSACTION IS EXEMPT FROM REGISTRATION.

WARRANT TO PURCHASE COMMON STOCK

RESPIRERX PHARMACEUTICALS INC.

Warrant Number: [_____]

Initial Exercise Date: [], 2016

THIS WARRANT TO PURCHASE COMMON STOCK (the "Warrant") certifies that, for value received, [_____] or his/her or its permitted assigns (the "Holder") is entitled, upon the terms and conditions hereof, and subject to the limitations on exercise hereinafter set forth, at any time on or after the date hereof (the "Initial Exercise Date") and on or prior to 5:00 p.m. New York time on September 30, 2020 (the "Termination Date") but not thereafter, to subscribe for and purchase from RespireRx Pharmaceuticals Inc. (formerly known as Cortex Pharmaceuticals, Inc.), a Delaware corporation (the "Company"), up to [the number of shares of common stock purchased in the Common Stock and Warrant Offering] shares (as subject to adjustment hereunder, the "Warrant Shares") of Common Stock. The purchase price of each share of Common Stock under this Warrant shall be equal to the Exercise Price, as defined in Section 2(b).

Section 1. Definitions. Capitalized terms used and not otherwise defined herein shall have the meanings set forth in (i) that Certain Exchange Agreement , dated as of [____], 2016, or (ii) that certain Common Stock and Warrant Purchase Agreement, dated as of [____], 2015 (the "Purchase Agreement"), among the Company and the Investors, as applicable. [In the event of conflict in the definitions of any capitalized terms, the definition in the Exchange Agreement shall control.] This is one of the "New Warrants" referred to in the Exchange Agreement.

Section 2. Exercise.

a) Exercise of Warrant. Exercise of the purchase rights represented by this Warrant may be made, in whole or in part, at any time or times on any Business Day (as defined below) 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 completed and executed facsimile copy of the Notice of Exercise form annexed hereto (the "Notice of Exercise"). Within three (3) Business Days (as defined below) following the date of exercise as aforesaid, the Holder shall deliver the aggregate Exercise Price (as defined below) for the shares specified in the applicable Notice of Exercise by wire transfer in immediately available funds or cashier's check drawn on a United States bank in immediately available funds. A "Business Day" means any day other than a Saturday or Sunday or any day that national commercial banks in New York City, New York are authorized or required to close or any day that the NASDAQ stock markets or any other nationally recognized stock markets are closed. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company until the Holder has purchased all of the Warrant Shares available hereunder and the Warrant has been exercised in full, in which case, the Holder shall surrender this Warrant to the Company for cancellation within three (3) Business 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 Company, either directly or through its representative, shall maintain, or cause to be maintained, records showing the number of Warrant Shares purchased and the date of such purchases, which records shall be deemed to be accurate absent manifest error. The Company shall deliver any objection to any Notice of Exercise within two (2) Business Days of actual 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 initially shall be \$[] per share, subject to adjustment hereunder (including, without limitation, under Sections 2 and 3 hereof) (as adjusted, the “Exercise Price”).

c) Cashless Exercise. This Warrant may be exercised at any time otherwise permitted by means of a “cashless exercise” in which the Holder shall be entitled to receive a certificate for the number of Warrant Shares equal to the quotient obtained by the following formula:

$$\frac{(A-B)*(X)}{(A)}$$

Where:

(A) = the Closing Price on the Trading Day immediately preceding the date of such election (“Trading Day” means any Business Day, or, if the Common Stock of the Company is traded on an exchange, the OTC BB or other quotation system, then any Business Day on which such exchange, the OTC Bulletin Board or quotation system is open for trading the Common Stock of the Company);

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

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

As used herein, “Closing Price”, shall mean the first of the following clauses that applies: (1) if, at the time of any such calculation, the Common Stock is listed or quoted on the American Stock Exchange, or the New York Stock Exchange, or the NASDAQ Market, the NASDAQ Capital Market or the Archipelago Exchange, the Closing Price shall be the closing or last sale price reported for the last business day immediately preceding the date of any such calculation; (2) if, at the time of any such calculation, the Common Stock is quoted on the OTC Bulletin Board or listed in the “Pink Sheets” published by the National Quotation Bureau Inc. or a similar agency or organization succeeding to its function or reporting prices, the Closing Price shall be the average of the closing prices reported for the last five (5) days during which the Common Stock actually traded and for which a closing price is available immediately preceding the date of any such calculation, or (3) in all other cases, the Closing Price of a share of Common Stock shall be the price determined by an independent appraiser selected in good faith by the Holder and reasonably acceptable to the Company.

d) Mechanics of Exercise.

i. Delivery of Certificates Upon Exercise. Certificates for shares issuable upon the exercise hereof shall be transmitted by the transfer agent of the Company to the Holder by crediting the account of the Holder's broker with the Depository Trust Company through its Deposit Withdrawal Agent Commission ("DWAC") system if the Company is a participant in such system and such shares are eligible for legend removal, and otherwise by physical delivery to the address specified by the Holder in the Notice of Exercise on the date that is no more than five (5) Business Days after the latest of (A) the delivery to the Company of the Notice of Exercise, (B) surrender of this Warrant (if required), and (C) payment of the aggregate Exercise Price as set forth above (such date, the "Warrant Share Delivery Date"). The Warrant Shares shall be deemed to have been issued, and Holder or any other person so designated to be named therein shall be deemed to have become a holder of record of such shares for all purposes, as of the latter of the date the Warrant has been exercised and payment to the Company of the Exercise Price has been made in good funds by either certified check, wire transfer or other similar payment method and all taxes required to be paid by the Holder, if any, pursuant to Section 2(d)(v) prior to the issuance of such shares, having been paid.

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, at the time of delivery of the certificate or certificates representing 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 transmit, or to cause the transfer agent of the Company to transmit, to the Holder a certificate or the certificates representing 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. 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.

v. Charges, Taxes and Expenses. Issuance of certificates for 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 certificate, all of which taxes and expenses shall be paid by the Company, and such certificates 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 certificates for 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 (the "Assignment Form") 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.

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

vii. Acquisitions. If at any time while this Warrant is outstanding there is an Acquisition (as defined below) in which the Company is not the surviving entity, then the Holder shall receive from any surviving entity or successor to the Company, in exchange for this Warrant, a new warrant in the surviving entity or successor to the Company substantially in the form of this Warrant and with an exercise price adjusted to reflect the nearest equivalent exercise price of common stock of the surviving entity that would reflect the economic value of this Warrant, but in the surviving entity. An “Acquisition” shall mean the closing of a merger, share exchange, consolidation, acquisition of all or substantially all of the assets or stock, reorganization or liquidation of the Company that results in the stockholders of the Company immediately prior to such transaction owning less than 50% of the voting capital stock of the Company (or its successor or parent corporation) immediately after the transaction or, in the case of a sale of assets or liquidation, the Company owning after the transaction less than substantially all of the assets owned by the Company prior to the transaction (other than an issuance of equity securities for the primary purpose of raising capital) or any other event that constitutes a “Capital Change” under the Company’s Second Restated Certificate of Incorporation, as it may be amended, restated or otherwise modified from time to time. The Holder shall execute all documentation required to be executed by the Company or the acquirer or successor of the Company in connection with the Acquisition, including, without limitation, escrow, indemnification and other similar agreements. Subject to and to the extent permitted by applicable law, the Company will endeavor to notify the Holder of any proposed Acquisition at least 30 days prior to the date of any Acquisition (or such shorter period as reasonably practicable under the circumstances); provided that the failure to so notify the Holder shall not in any way impair the Acquisition.

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 and which shall not include any dividends paid-in-kind in respect to the Series G 1.5% Convertible Preferred Stock), (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) Calculations. All calculations under this Section 3 shall be made to the nearest 1/100th of a 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.

c) Notice to Holder.

i. Adjustment to Exercise Price. Whenever the Exercise Price is adjusted pursuant to this Section 3, the Company shall promptly mail to the Holder 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 special nonrecurring cash dividend on or a redemption of the Common Stock, (B) 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, or (C) the Company shall authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of the Company, any of the events in Section 3.(c)ii (A), (B) or (C) being an “Event”, then, in each case, the Company shall cause to be mailed to the Holder at its last address as it shall appear upon the Warrant Register (as defined below) of the Company, at least ten (10) calendar days prior to the applicable record or effective date hereinafter specified, a notice stating (x) the date on which a record is to be taken for the purpose of such dividend, distribution, redemption, rights or warrants, or if a record is not to be taken, the date as of which the holders of the Common Stock of record shall be entitled to such dividend, distributions, redemption, rights or warrants are to be determined or (y) the date on which such Event is expected to become effective or close, as applicable, 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 Event; provided that the failure to mail such notice or any defect therein or in the mailing thereof shall not affect the validity of the corporate action required to be specified in such notice. 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. Subject to compliance with any applicable securities laws, the conditions set forth in Section 4(d) hereof, and the conditions of the Exchange Agreement (including, without limitation, the Company’s prior written consent in accordance with the Exchange Agreement) pursuant to which this Warrant was purchased, 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 an Assignment Form 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. 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 Exercise Date and shall be identical with this Warrant except as to the number of Warrant Shares issuable pursuant thereto.

c) Warrant Register. The Company shall, either directly or through its representative, record or cause to be recorded, 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, which Warrant Register shall be deemed to be accurate absent manifest error. The Company may deem and treat the registered Holder of this Warrant as the absolute owner hereof for the purpose of any exercise hereof or any distribution to the Holder, and for all other purposes, absent actual notice to the contrary.

d) Transfer Restrictions. If, at the time of the surrender of this Warrant in connection with any transfer of this Warrant, the transfer of this Warrant shall not be either (i) registered pursuant to an effective registration statement under the Securities Act and under applicable state securities or blue sky laws or (ii) eligible for resale without volume or manner-of-sale restrictions or current public information requirements pursuant to Rule 144, the Company may require, as a condition of allowing such transfer, that the Holder or transferee of this Warrant satisfy any other reasonable conditions established by the Company, including, without limitation, a legal opinion reasonably acceptable to the Company with respect to such transfer.

e) Representation by the Holder. The Holder, by the acceptance hereof, represents and warrants that it is acquiring this Warrant and, upon any exercise hereof, will acquire the Warrant Shares issuable upon such exercise, for its own account and not with a view to or for distributing or reselling such Warrant Shares or any part thereof in violation of the Securities Act or any applicable state securities law, except pursuant to sales registered or exempted under the Securities Act. The Holder acknowledges that the Warrant Shares will not be registered under the Securities Act of 1933, as amended, or any applicable statute or foreign securities law, and will therefore not be freely transferable.

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).

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

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

d) Authorized Shares.

The Company covenants that, during the period the Warrant is outstanding, it will reserve from its authorized and unissued Common Stock a sufficient number of shares to provide for the issuance of the Warrant Shares upon the exercise of any purchase rights under this Warrant. The Company further covenants that its issuance of this Warrant shall constitute full authority to its officers who are charged with the duty of executing stock certificates to execute and issue the necessary certificates for the 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 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 reasonably 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 reasonably 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 is a contract between the Company and the Holder and its terms shall be governed by and construed in accordance with the laws of the State of New York applicable to contracts made and to be performed in the State of New York, without giving effect to any choice or conflict of law provision or rule of that or any other jurisdiction. The Company and each Holder irrevocably consent to the jurisdiction of the United States federal courts and the state courts located in New York City, in any suit or proceeding based on or arising under this Warrant and irrevocably agree that all claims in respect of such suit or proceeding may be determined in such courts. The Company and each Holder irrevocably waives the defense of an inconvenient forum to the maintenance of such suit or proceeding in such forum. The Company further agrees that service of process upon the Company mailed by first class mail shall be deemed in every respect effective service of process upon the Company in any such suit or proceeding. Nothing herein shall affect the right of any Holder to serve process in any other manner permitted by law. The Company agrees that a final non-appealable judgment in any such suit or proceeding shall be conclusive and may be enforced in other jurisdictions by suit on such judgment or in any other lawful manner.

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

g) Nonwaiver. 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, notwithstanding the fact that all rights hereunder terminate on the Termination Date.

h) Notices. Any notice, request or other document required or permitted to be given or delivered to the Holder by the Company shall be deemed delivered the day after the date sent if sent by overnight courier, the same day sent if sent by facsimile transmission or email with confirmation of receipt by the Holder, or three (3) days after deposit with the US Postal Service if sent via certified mail or first class mail if sent to the Holder at the address, facsimile number or email address provided by the Holder as of the last date on which Holder communicated in writing such contact information to the Company.

i) 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.

j) Successors and Assigns. Subject to applicable securities laws, the provisions and limitations of the Exchange Agreement (including, without limitation, the Company's prior written consent in accordance with the Exchange Agreement) and 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. Such successors or permitted assigns of the Holder shall be deemed to be the Holder for all purposes hereunder. 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. Nothing herein, express or implied, is intended to or shall confer upon any other person any legal or equitable right, benefit or remedy of any nature whatsoever, under or by reason of this Warrant.

k) Entire Agreement. This Warrant constitutes the sole and entire agreement of the parties to this Warrant with respect to the subject matter contained herein, and supersedes all prior and contemporaneous understandings and agreements, both written and oral, with respect to such subject matter.

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) Waiver of Jury Trial. Each party acknowledges and agrees that any controversy which may arise under this Warrant is likely to involve complicated and difficult issues and, therefore, each such party irrevocably and unconditionally waives any right it may have to a trial by jury in respect of any legal action arising out of or relating to this Warrant or the transactions contemplated hereby.

(Signature Page Follows)

IN WITNESS WHEREOF, the Company has caused this Warrant to be executed by its officer thereunto duly authorized as of the ___ day of _____, 2016.

RESPIRERX PHARMACEUTICALS INC.

By: _____

Name: Jeff E. Margolis

Title: Vice President, Secretary and Treasurer

AGREED AND ACCEPTED:

[HOLDER]

Signature: _____

Name (print): _____

Address: _____

Email: _____

Facsimile Number: _____

NOTICE OF EXERCISE

TO: RESPIRERX PHARMACEUTICALS INC.

(1) The undersigned, pursuant to the provisions set forth in the attached Warrant No. _____, hereby irrevocably elects to purchase (*check applicable box*):

_____ shares of the Common Stock of RespireRx Pharmaceuticals Inc. covered by such Warrant.

(2) The undersigned herewith makes payment of the full purchase price for such shares at the price per share provided for in such Warrant. Such payment takes the form of (*check applicable box or boxes*):

\$ _____ in lawful money of the United States; and/or

pursuant to Section 2(c) of the Warrant being exercised, the cancellation of such portion of such Warrant as is exercisable for a total of _____ Warrant Shares (using a Closing Price of \$ _____ per share for purposes of this calculation).

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

_____ (please print or type name and address)

_____ (please insert social security or other identifying number)

The Warrant Shares shall be delivered to the following:

_____ (please print or type name and address)

and if such number of shares of Common Stock shall not be all the shares evidenced by this Warrant Certificate, that a new Warrant for the balance of such shares be registered in the name of, and delivered to, Holder.

The Warrant Shares shall be delivered to the following DWAC Account Number or by physical delivery of a certificate to:

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

[SIGNATURE OF HOLDER]

Name of Investing Entity: _____

Signature of Authorized Signatory of Investing Entity: _____

Name of Authorized Signatory: _____

Title of Authorized Signatory: _____

Date: _____

ASSIGNMENT FORM

(To assign the foregoing warrant, execute this form and supply required information. Do not use this form to exercise the warrant.)

FOR VALUE RECEIVED, [____] all of or [_____] shares of the foregoing Warrant and all rights evidenced thereby are hereby assigned to

_____ whose address is

_____.

Dated: _____, _____

Holder's Signature:

Holder's Address:

Assignee's Signature: _____

Company's Signature: _____

NOTE: The signature to this Assignment Form must correspond with the name as it appears on the face of the Warrant, without alteration or enlargement or any change whatsoever, and must be guaranteed by a bank or trust company. Officers of corporations and those acting in a fiduciary or other representative capacity should file proper evidence of authority to assign the foregoing Warrant.

EXCHANGE AGREEMENT

_____ (the “**Holder**”) enters into this Agreement (the “**Agreement**”) with RespireRx Pharmaceuticals Inc. (formerly known as Cortex Pharmaceuticals, Inc.), a Delaware corporation (the “**Company**”) on [____], 2016, whereby Holder will exchange Holder’s 10% Convertible Notes (“**Notes**”), Warrants issued in connection therewith (as amended, “**Warrants**”) and extension warrants issued in connection thereto (“**Extension Warrants**”) and together with the Notes and the Warrants, the “**Securities**”) and cash for shares of common stock of the Company (the “**Exchange**”).

RECITALS

WHEREAS, the Holder is the holder of Note number ____, Warrant Number ____ and Extension Warrant Number ____ to purchase up to _____ shares of the Company’s Common Stock (the “**Common Stock**”) in the aggregate;

WHEREAS, the Holder wishes to exchange the Securities and pay cash to obtain _____ shares of Common Stock;

NOW, THEREFORE, in consideration of the mutual covenants and agreements hereinafter set forth and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and on and subject to the terms and conditions set forth in this Agreement, the parties hereto agree as follows:

1. *The Exchange.*

(a) *Exchange of Note, Warrant, Extension Warrant and Cash for Shares.* At the Closing (as defined herein), the Holder agrees to exchange the Securities and deliver and transfer all right, title and interest in the Securities to the Company and to deliver to the Company by wire transfer of immediately available funds in accordance with the Company’s instructions cash in an amount of \$_____ (the “**Cash Amount**”), and in exchange therefor, the Company hereby agrees to issue the Holder _____ shares of Common Stock (the “**Shares**”). References to a “Section” or “Schedule” are references to a Section of, or Schedule attached to, this Agreement unless otherwise specified.

(b) *Closing and Delivery.* The Exchange shall take place at a closing (the “**Closing**”) to be held at such place and time as the Company and the Holder shall mutually determine (the “**Closing Date**”). At the Closing, the Holder shall assign and transfer all right, title and interest in and to its Securities to the Company and the Company will deliver to the Holder the Shares registered in such Holder’s name, against receipt by the Company of the Holder’s Securities and the Cash Amount for the account of the Company by wire transfer of immediately available funds in accordance with the Company’s instructions. The cash proceeds of the Exchange shall be used by the Company in connection with research and development, general and administrative purposes and working capital. The Closing shall take place no later than June 30, 2015.

(c) *Acceptance by the Company.* This Agreement shall be deemed to be accepted by the Company only when it is signed by a duly authorized officer of the Company and delivered to the Holder at the Closing referred to in **Section 1(b)** hereof.

2. Covenants, Representations and Warranties of the Company. The Company hereby covenants as follows and, except as set forth on **Schedule I** hereto, makes the following representations and warranties, each of which is and shall be true and correct on the date hereof and, in all material respects, at the Closing Date, to the Holder, and all such covenants, representations and warranties shall survive the Closing.

(a) *Due Incorporation; Qualification.* The Company (i) is a corporation duly organized, validly existing and in good standing under the laws of its jurisdiction of organization; (ii) has the power and authority to own, lease and operate its properties and carry on its business as now conducted; and (iii) is duly qualified, licensed to do business and in good standing as a foreign corporation in each jurisdiction where such qualification or license is required by law, other than those jurisdictions as to which the failure to be so qualified or in good standing could not reasonably be expected to have a material adverse effect on the Company and its subsidiaries taken as a whole.

(b) *Authority; Enforceability.* The execution, delivery and performance by the Company of this Agreement and the consummation of the Exchange (i) are within the corporate power of the Company and (ii) have been duly authorized by all necessary corporate action on the part of the Company. This Agreement has been duly executed and delivered by the Company and constitutes a legal, valid and binding obligation of the Company, enforceable against the Company in accordance with its terms, except as limited by bankruptcy, insolvency, reorganization, moratorium or other similar laws relating to or affecting the enforcement of creditors' rights generally and general principles of equity (regardless of whether such enforceability is considered in a proceeding in equity or at law).

(c) *Non-Contravention.* The execution and delivery by the Company of this Agreement and the performance and consummation of the transactions contemplated hereby do not (i) violate the Company's Certificate of Incorporation, Bylaws or other formation or charter documents, as applicable (as amended, the "**Charter Documents**"), (ii) violate any material judgment, order, writ, decree, statute, rule or regulation applicable to the Company; (iii) result in the breach of any material provision of or in the acceleration of, or entitle any other person to accelerate (whether after the giving of notice or lapse of time or both), any material mortgage, indenture, agreement, instrument or contract to which the Company is a party or by which it is bound; or (iv) result in the creation or imposition of any lien or encumbrance upon any property, asset or revenue of the Company under any material agreement or instrument to which the Company is bound.

(d) *Litigation.* No actions (including, without limitation, derivative actions), suits, proceedings or investigations are pending or, to the knowledge of the Company, threatened in writing against the Company or the Company's subsidiaries, if any, at law or in equity in any court or before any other governmental authority.

(e) *Title.* The Company and the Company's subsidiaries own and have good and marketable title in fee simple absolute to, or a valid leasehold in, all their respective real properties, if any, and good title to their other respective assets and properties. Such assets and properties are subject to no liens or encumbrances.

(f) *Intellectual Property.* The Company and the Company's subsidiaries own or possess sufficient legal rights to all patents, trademarks, service marks, trade names, copyrights, trade secrets, licenses, information, processes and other intellectual property rights necessary for its business as now conducted and as proposed to be conducted, without any conflict with, or infringement of, the rights of others. Since March 22, 2013, each employee of the Company has executed, or will execute, a confidential information and invention assignment agreement in favor of the Company. Since March 22, 2013, the Company has entered into, or intends to enter into, an agreement containing appropriate confidentiality and invention assignment provisions in favor of the Company with each consultant to the Company that has or will have access to the Company's intellectual property.

(g) *Debt for Borrowed Money.* As of the date of this Agreement, the Company does not have any outstanding debt for borrowed money, other than as disclosed on **Schedule I**.

(h) *Exchange.* The terms of the Exchange are the result of negotiations among the parties and their agents.

3. ***Covenants, Representations and Warranties of the Holder.*** The Holder hereby covenants as follows and makes the following representations and warranties, each of which is and shall be true and correct on the date hereof and at the Closing, to the Company, and all such covenants, representations and warranties shall survive the Closing.

(a) *Binding Obligation.* Holder has full legal capacity, power and authority to execute and deliver this Agreement and to perform its obligations hereunder. This Agreement has been duly executed and delivered by the Holder and constitutes a legal, valid and binding obligation of the Holder, enforceable in accordance with its terms, except as limited by bankruptcy, insolvency, reorganization, moratorium or other similar laws relating to or affecting the enforcement of creditors' rights generally and general principles of equity (regardless of whether such enforceability is considered in a proceeding in equity or at law).

(b) *Title to the Existing Warrant.* The Holder is, and on the date of the Closing will be, the sole legal and beneficial owner of the Securities free and clear of any mortgage, lien, pledge, charge, security interest, encumbrance, title retention agreement, option, equity or other adverse claim thereto created by the Holder.

(c) *Securities Law Compliance.* The Holder has been advised that the Shares have not been registered under the Securities Act of 1933, as amended (the "**Securities Act**"), or any state securities laws, and therefore, cannot be resold unless they are registered under the Securities Act and applicable state securities laws unless an applicable exemption from such registration requirements is available. The Holder has not been formed solely for the purpose of making this investment and is entering into this Agreement and acquiring the Shares for its own account for investment, not as a nominee or agent, and not with a view to, or for resale in connection with, the distribution of thereof. The Holder has no present intention of selling, granting any participation in, or otherwise distributing the same and Holder does not have any contract, undertaking, agreement or arrangement with any person to sell, transfer, grant any participation in or otherwise distribute all or any part of the Shares. The Holder acknowledges that the Shares will not be freely transferable upon receipt. The Holder has such knowledge and experience in financial and business matters that the Holder is capable of evaluating the merits and risks of such investment, is able to incur a complete loss of such investment without impairing the Holder's financial condition and is able to bear the economic risk of such investment for an indefinite period of time. The Holder is an accredited investor as such term is defined in Rule 501 of Regulation D under the Securities Act.

(d) *Adequate Information; No Reliance.* The Holder acknowledges and agrees that (a) the Holder has been furnished with all materials the Holder considers relevant to making an investment decision to enter into this Agreement and effectuate the Exchange and has had the opportunity to review (and has carefully reviewed) (i) the Company's filings and submissions with the Securities and Exchange Commission (the "SEC"), including, without limitation, all information filed or furnished pursuant to the United States Securities and Exchange Act of 1934, as amended (collectively, the "Public Filings"), and (ii) this Agreement, (b) the Holder has had an opportunity to submit questions to the Company concerning the Company, its business, operations, financial performance, financial condition and prospects, and the terms and conditions of the Exchange, and has all information that it considers necessary in making an informed investment decision and to verify the accuracy of the information set forth in the Public Filings and this Agreement, (c) the Holder has had the opportunity to consult with accounting, tax, financial and legal advisors of its choosing to be able to evaluate the risks involved in the Exchange and to make an informed investment decision with respect to such Exchange, (d) the Holder is not relying, and has not relied, upon any statement, advice (whether accounting, tax, financial, legal or other), representation or warranty made by the Company or any of its affiliates or representatives or any other entity or person, except for (A) the Public Filings, (B) this Agreement and (C) the representations and warranties made by the Company in this Agreement, and (e) no statement or written material contrary to the Public Filings or this Agreement has been made or given to the Holder by or on behalf of the Company.

(e) *No Publicity.* The Holder acknowledges that it has a pre-existing relationship with the Company and that it has not approached the Company about this Exchange as the result of any public offering. Neither the Company nor any other person has approached the Holder about this Exchange by means of any form of general solicitation or advertising.

(f) *Confidentiality.* The Holder has complied with its confidentiality undertaking as acknowledged by an email from a representative of the Company to the Holder on April __, 2016.

(g) *Source of Funds.* The Holder represents that, as to the source of funds ("Source") to be used by the Holder to pay the Cash Amount, the Source does not include assets of any employee benefit plan, other than a plan exempt from the coverage of the Employee Retirement Income Security Act of 1974, as amended from time to time, and the rules and regulations promulgated thereunder from time to time in effect.

(h) *Further Action.* The Holder agrees that it will, upon request, execute and deliver any additional documents deemed by the Company to be necessary or desirable to complete the Exchange.

(i) *Exchange.* The terms of the Exchange are the result of negotiations among the parties and their agents.

4. **Conditions to Closing of the Holder.** The Holder's obligations at the Closing are subject to the fulfillment, on or prior to the applicable Closing Date, of all of the following conditions:

(a) *Representations and Warranties.* The representations and warranties made by the Company in **Section 2** hereof, in each case except as modified by **Schedule I**, shall have been true and correct when made, and shall be true and correct in all material respects on the Closing Date.

(b) *Governmental Approvals and Filings.* Except for any notices required or permitted to be filed after the applicable Closing Date with certain federal and state securities commissions, the Company shall have obtained all governmental approvals required in connection with the lawful sale and issuance of the Shares.

(c) *Legal Requirements.* On the Closing Date, the Exchange, including the sale and issuance by the Company, and the purchase by the Holder, of the Shares shall be legally permitted by all laws and regulations to which the Holder and the Company are subject.

(d) *Agreement and Shares.* The Company shall have duly executed and delivered to the Holder (i) this Agreement, and (ii) the Shares.

5. Conditions to Obligations of the Company. The Company's obligation to effectuate the Exchange and to issue and sell the Shares to the Holder at the Closing, is subject to the fulfillment, on or prior to the applicable Closing Date, of all of the following conditions:

(a) *Representations and Warranties.* The representations and warranties made by the Holder in **Section 3** hereof shall be true and correct when made, and shall be true and correct on the Closing Date.

(b) *Legal Requirements.* On the Closing Date, the Exchange, including the sale and issuance by the Company, and the purchase by the Holder, of the Shares shall be legally permitted by all laws and regulations to which the Holder and the Company are subject.

(c) *Agreement, Securities, Shares.* The Holder shall have delivered to the Company the the Securities and the Cash Amount and shall have duly executed and delivered to the Company (i) this Agreement and (ii) an acceptance by the Holder of the Shares.

6. Miscellaneous.

(a) *Waivers; Amendments.* Any provision of this Agreement may be amended, waived or modified only upon the written consent of the Company and the Holder.

(b) *Governing Law.* This Agreement and all actions arising out of or in connection with this Agreement shall be governed by and construed in accordance with the laws of the State of New York, without regard to the conflicts of law provisions of the State of New York or of any other state.

(c) *Survival.* The representations, warranties, covenants and agreements made herein shall survive the execution and delivery of this Agreement.

(d) *Successors and Assigns.* Subject to the restrictions on transfer described in **Section 6(e)** below, the rights and obligations of the Company and the Holder shall be binding upon and benefit the successors, assigns, heirs, administrators and transferees of the parties.

(e) *Assignment.* The rights, interests or obligations hereunder may not be assigned, by operation of law or otherwise, in whole or in part, by the Company without the prior written consent of the Holder. The rights, interests or obligations hereunder may not be assigned by the Holder without the prior written consent of the Company.

(f) *Entire Agreement.* This Agreement constitutes and contains the entire agreement and understanding between the Company and the Holder with respect to the subject matter hereof and supersede any and all prior and contemporaneous agreements, negotiations, correspondence, understandings and communications between or among the parties or any of their agents, representatives or affiliates, whether written or oral, respecting the subject matter hereof.

(g) *Notices.* All notices, demands, consents, or other communications hereunder shall in writing and faxed, mailed or delivered to each party as follows: (i) if to the Holder, at the Holder's address or facsimile number set forth on the signature page hereto, or at such other address as the Holder shall have furnished the Company in writing in accordance with this paragraph, or (ii) if to the Company, at such address or fax number set forth on the signature page hereto, or at such other address or facsimile number as the Company shall have furnished to the Holder in writing in accordance with this paragraph. All such communications will be deemed effectively given the earlier of (i) when received, (ii) when delivered personally, (iii) one business day after being delivered by facsimile (with receipt of appropriate confirmation), (iv) one business day after being deposited with an overnight courier service of recognized standing, or (v) four days after being deposited in the U.S. mail, first class with postage prepaid.

(h) *Expenses.* Each of the Company and the Holder will bear their own respective expenses associated with the negotiation, execution and delivery of this Agreement and the consummation of the Exchange.

(i) *Only Company Liable.* In no event shall any stockholder, officer, director or employee of the Company be liable for any amounts due or payable pursuant to this Agreement.

(j) *Severability.* If any provision of this Agreement shall be judicially determined to be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

(k) *Headings.* Headings used in this Agreement have been included for convenience and ease of reference only, and will not in any manner influence the construction or interpretation of any provision of this Agreement. Neither party, nor its respective counsel, shall be deemed the drafter of this Agreement for purposes of construing the provisions of this Agreement, and all language in all parts of this Agreement shall be construed in accordance with its fair meaning, and not strictly for or against either party.

(l) *Counterparts.* This Agreement may be executed in one or more counterparts, each of which will be deemed an original, but all of which together will constitute one and the same agreement. Facsimile copies of signed signature pages will be deemed binding originals.

(m) *Termination.* The Company may terminate this Agreement if there has occurred any breach or withdrawal by the Holder of any covenant, representation or warranty set forth in **Section 3**. The Holder may terminate this Agreement if there has occurred any breach or withdrawal by the Company of any covenant, representation or warranty set forth in **Section 2**.

(Signature Page Follows)

The parties have caused this Agreement to be duly executed and delivered by their proper and duly authorized officers as of the date and year first written above.

COMPANY:

RESPIRERX PHARMACEUTICALS INC.

a Delaware corporation

By: _____

Name:

Title:

Address for notices:

RespireRx Pharmaceuticals Inc.

Attention: _____

126 Valley Road, Suite C

Glen Rock, NJ 07452

(phone): _____

(fax): _____

HOLDER:

[HOLDER NAME (IF ENTITY)]

By: _____ (signature)

Print Name:

Print Title:

Address for notices:

(phone): _____

(fax): _____

SCHEDULE I

EXCEPTIONS TO REPRESENTATIONS AND WARRANTIES

Convertible Notes

The Company is obligated under Convertible Notes issued from November 5, 2014 through and including February 2, 2015, aggregating principal amounts totaling \$579,500 and bearing interest of 10% per annum and maturing on September 15, 2016.

Notes

The Company is obligated under two demand promissory notes of \$52,600 each for a total of \$105,200 to James S. Manuso, the Company's President and CEO and Vice Chairman and Arnold S. Lippa, the Company's Chief Scientific Officer and Chairman. Each note is payable on demand and bears interest at a rate equal to 10% per annum, with any accrued but unpaid interest added to principal at the end of each year that the balance is outstanding. Each note grants a security interest in the assets of the Company, subject to certain conditions as set forth therein. These demand promissory notes are described in a Form 8-K filed with the Securities and Exchange Commission on February 3, 2016.

Samyang Documents

Permitted liens include the liens granted to Samyang Optics Co., Ltd. (now known as SY Corporation, Co., Ltd.) ("**Samyang**") and its successors and assigns under that certain Securities Purchase Agreement, dated as of June 25, 2012, between the Company and Samyang and any documents delivered in connection therewith (as amended, restated or otherwise modified from time to time, collectively, the "**Samyang Documents**"). The indebtedness pursuant to the Samyang Documents and all transactions contemplated in connection with the Samyang Documents are permitted hereunder. The Company is in default of certain of the Samyang Documents, as more fully set forth in the Company's filings with the U.S. Securities and Exchange Commission.

Trade Accounts

From time to time, the Company has obligations in respect of trade accounts payable.

The Company has certain obligations in respect of claims by one prior employee and certain prior advisors. Payments with respect to certain of those obligations are due at the end of December 2015.
