Filed pursuant to Rule 253(g)(2)
File No. 024-11602

SUPPLEMENT NO. 1 DATED DECEMBER 14, 2021
(to the Offering Circular dated December 13, 2021)

RespireRx Pharmaceuticals Inc.
126 Valley Road, Suite C
Glen Rock, New Jersey 07452
(201) 444-4947

This Offering Circular Supplement No. 1 ("Supplement No. 1") supplements and amends the offering circular of RespireRx Pharmaceuticals, Inc. (the "Company") dated December 13, 2021 the "Offering Circular"), relating to Company's Tier 2 offering under Regulation A of Section 3(6) of the Securities Act of 1933, as amended, of up to 375,000,000 shares of the Company's common stock, par value $0.001 per share (the "Common Stock"), at an offering price of $0.02 per share, for a maximum offering amount of $7,500,000 (the "Offering"). This Supplement No. 1 should be read in conjunction with the Offering Circular and is qualified by reference to the Offering Circular except to the extent that the information in this Supplement No. 1 supersedes the information contained in the Offering Circular.

Since December 13, 2021, the Company has submitted a form 8-K with three exhibits related to a press release and two slide decks to be presented at upcoming investor conferences.

This Supplement No.1 attaches the Current Report on Form 8-K that the Company filed with the U.S. Securities and Exchange Commission on December 14, 2021.

Investing in our securities involves a high degree of risk. You should review carefully the risks and uncertainties described under the heading "Risk Factors" beginning on page 10 of the Offering Circular, and under similar headings in any amendments or supplements to the Offering Circular.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of the Offering Circular or this Supplement No. 1. Any representation to the contrary is a criminal offense.

The date of this Supplement No. 1 is December 14, 2021

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): December 10, 2021

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

Delaware	**1-16467**	**33-0303583**
(State or other jurisdiction of incorporation)	**(Commission File Number)**	**(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))

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
N/A	N/A	N/A

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

Emerging growth company ☐

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

Item 7.01. Regulation FD Disclosure.

RespireRx Pharmaceuticals Inc. (the "Company") announced today, that its Chief Financial Officer, Jeff Margolis, will be presenting at the Life Sciences Virtual Investor Conference ("LSVIC") on December 16, 2021 at 10:00 am EST. A copy of the press release describing the conference and the Company's participation is attached as Exhibit 99.1. In addition, the presentation materials in the form of the slide deck to be presented is attached as Exhibit 99.2 to this Current Report on Form 8-K and is incorporated herein by reference.

In the same press release that is Exhibit 99.1, RespireRx announced that the Company's video presentation for the Biotech Showcase™ was made available by the Biotech Showcase™ on Friday, December 10, 2021 to registered participants. The slide deck, both in video and pdf format (without video), will be available on the Company's website at www.respirerx.com and the pdf format (without video) is attached as Exhibit 99.3 to this Current Report on Form 8-K and is incorporated herein by reference.

The press release and the slide decks that are Exhibits 99.1, 99.2 and 99.3 include certain forward-looking information.

The information in this Item 7.01 and the documents attached as Exhibit 99.1, 99.2 and 99.3 are being furnished and shall not be deemed "filed" for purposes of Section 18 of the Securities and Exchange Act of 1934, as amended (the "Exchange Act"), nor otherwise subject to the liabilities of that section, nor incorporated by reference in any filing under the Securities Act of 1933, as amended, or the Exchange Act, except as shall be expressly set forth by specific reference in such a filing.

Item 9.01 Financial Statements and Exhibits

(d) Exhibits.

Exhibit Number	Exhibit Description
99.1	RespireRx Pharmaceuticals Inc. Press Release
99.2	RespireRx Pharmaceuticals Inc. Slide deck for Life Sciences Virtual Investor Conference
99.3	RespireRx Pharmaceuticals Inc. Slide deck for Biotech Showcase™
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

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: December 14, 2021

RESPIRERX PHARMACEUTICALS INC.
(Registrant)

By: */s/ Jeff E. Margolis*
Jeff E. Margolis
SVP, CFO, Secretary and Treasurer

Exhibit 99.1

RespireRx Pharmaceuticals Inc. to Present at Upcoming Virtual Life Sciences Investor Conference and Biotech Showcase™

Glen Rock, N.J., December 14, 2021 /Globe Newswire – RespireRx Pharmaceuticals Inc. (OTCQB: RSPI) ("RespireRx" or the "Company"), with a mission to discover and develop innovative and revolutionary treatments to combat diseases caused by disruption of neuronal signaling, is pleased to announce that its Chief Financial Officer, Jeff Margolis, will be presenting at the Life Sciences Virtual Investor Conference ("LSVIC") on December 16, 2021 at 10:00 am EST, and its President and CEO, Tim Jones will be presenting via pre-recorded video at the virtual Biotech Showcase™ taking place January 17 – 19, 2022.

Life Sciences Virtual Investor Conference

At the LSVIC, Mr. Margolis will be sharing the Company's vision, its platform and program areas and answering audience questions. The slide deck used during the presentation will be available on the Company's website and as furnished (not filed) to the SEC as an exhibit to our Current Report on Form 8-K available at www.sec.gov

Virtual Investor Conferences® is a proprietary investor conference series and is part of the OTC Market Group's suite of investor relations services. These conferences are quarterly events for public and private companies, investors, and industry professionals from around the world. The LSVIC is a day-long virtual event with live company presentations and interactive discussions.

Individual investors, institutional investors, advisors, and analysts are invited to attend. The program opens at 9:15 am EST on Thursday, December 16th with the first live webcast at 9:30 am EST. Mr. Margolis is presenting at 10:00 am.

Interested parties may register at https://bit.ly/3Go96iH.

It is recommended that investors pre-register and run the online system check to expedite participation and receive event updates. There is no cost to log-in, attend the live presentations or ask questions.

Biotech Showcase™

The Company's video presentation was made available by the Biotech Showcase™ on Friday, December 10, 2021 and may be viewed at:
https://partneringone.informaconnect.com/event/716/company/615/content/13

by registered participants. The slide deck, both in video and pdf format (without video), will be available on the Company's website at www.respirerx.com and as a furnished (not filed) exhibit to our Current Report on Form 8-K available at www.sec.gov. Because the Company is participating in the virtual portion of the Biotech Showcase™ and the presentation has been pre-recorded, there is no set schedule for presenting companies.

The in-person portion of the Biotech Showcase™ is taking place from January 10 – 12, 2022 in San Francisco, CA and virtual portion is taking place from January 17 - 19, 2022. Mr. Jones discusses the basis of the science behind RespireRx's portfolio of clinical candidates, the Company's short-term objectives and the potential global commercial opportunities that could be realized for the Company's novel and differentiated suite of products, which address a number of neurological and psychiatric disorders for which there are currently quite limited and inferior treatment options.

The video presentation will also be played as follows during the in-person event and will be viewable by Biotech Showcase™ registered participants:

Date: Tuesday, January 11, 2022
Time: 11:30 am PST (2:30 pm EST)
Track: Yosemite A (Ballroom Level)

Biotech Showcase™ and its family of events, China Showcase, Digital Medicine & Medtech Showcase and Seed Showcase, are investor conferences devoted to providing private and micro-mid-cap biotechnology companies an opportunity to present to and meet with investors and biopharmaceutical executives. Featuring over 400 curated presenting companies from around the world, from seed-stage companies to public, multi-national companies, from platform technology to therapeutic areas to digital health and device and diagnostics, the event attracts investors representing over USD 400 Billion in capital, and highly motivated strategic partners in the life science ecosystem.

Biotech Showcase™ is being delivered in a new hybrid format. In-person components will take place January 10–12, 2022 at the Hilton San Francisco Union Square in San Francisco, CA. Virtual event components will follow the week after, January 17–19, 2022, hosted on partneringONE® for a seamless digital experience.

About RespireRx Pharmaceuticals Inc.

RespireRx Pharmaceuticals Inc. is a leader in the discovery and development of medicines for the treatment of psychiatric and neurological disorders, with a focus on treatment options that address conditions affecting millions of people, but for which there are few or poor treatment options, including obstructive sleep apnea ("OSA"), attention deficit hyperactivity disorder ("ADHD"), epilepsy, chronic pain and recovery from spinal cord injury ("SCI"), as well as certain neurological orphan diseases. RespireRx is developing a pipeline of new and re-purposed drug products based on our broad patent portfolios for two drug platforms: (i) pharmaceutical cannabinoids, which include dronabinol, a synthetic form of Δ9-tetrahydrocannabinol ("Δ9-THC") that acts upon the nervous system's endogenous cannabinoid receptors and (ii) neuromodulators, which include AMPAkines and GABAkines, proprietary chemical entities that positively modulate (positive allosteric modulators or "PAMs") AMPA-type glutamate receptors and $GABA_A$ receptors, respectively.

The Company holds exclusive licenses and owns patents and patent applications or rights thereto for certain families of chemical compounds that claim the chemical structures and their uses in the treatment of a variety of disorders, as well as claims for novel uses of known drugs.

***ResolutionRx: Pharmaceutical Cannabinoids*.**

Dronabinol. RespireRx is developing dronabinol, Δ-9-THC, a synthetic version of the naturally occurring substance in the cannabis plant, for the treatment of OSA, a serious respiratory disorder that impacts an estimated 29.4 million people in the United States according to the American Academy of Sleep Medicine ("AASM"), published in August 2016. OSA has been linked to increased risk for hypertension, heart failure, depression, and diabetes, and has an annual economic cost in the United States of $162 billion according to the AASM. There are no approved drug treatments for OSA.

Two Phase 2 clinical trials have been completed demonstrating the ability of dronabinol to significantly reduce the symptoms of OSA and, subject to raising sufficient financing (of which no assurance can be provided) and pending the outcome of an intended meeting with the FDA, RespireRx believes that it will be able to commence a pharmacokinetic study for a recently discovered and to-be-developed formulation followed by a Phase 3 clinical study for the treatment of OSA with the new formulation. Because dronabinol is already FDA approved for the treatment of AIDS related anorexia and chemotherapy induced nausea and vomiting, the Company further believes that its re-purposing strategy would only require approval by the FDA of a 505(b)(2) new drug application ("NDA"), an efficient regulatory pathway that allows the use of publicly available data.

EndeavourRx: Neuromodulators

GABAkines. Under a License Agreement with the University of Wisconsin-Milwaukee Research Foundation, Inc. ("UWMRF"), RespireRx has licensed rights to certain selectively acting GABAkines because of their ability to selectively amplify inhibitory neurotransmission at a highly specific, subset of $GABA_A$ receptors, thus producing a unique efficacy profile with reduced side effects. Preclinical studies have documented their efficacy in a broad array of animal models of interrelated neurological and psychiatric disorders including epilepsy, pain, anxiety, and depression in the absence of or with greatly reduced propensity to produce sedation, motor-impairment, tolerance, dependence and abuse. The Company currently is focusing on developing KRM-II-81 for the treatment of epilepsy and pain.

KRM-II-81 has displayed a high degree of anti-convulsant activity in a broad range of preclinical studies, including in treatment resistant and pharmaco-resistant models. Not only was KRM-II-81 highly effective in these models, but pharmaco-resistance or tolerance did not develop to its anti-convulsant properties. These latter results are particularly important because pharmaco-resistance occurs when medications that once controlled seizures lose efficacy as a result of chronic use and it is a principle reason some epileptic patients require brain surgery to control their seizures. In support of its potential clinical efficacy, translational studies have demonstrated the ability of KRM-II-81 to dramatically reduce epileptiform electrical activity when administered *in situ* to brain slices excised from treatment resistant epileptic patients undergoing surgery.

In addition, KRM-II-81 has displayed a high degree of analgesic activity in a broad range of preclinical studies. In intact animal models of acute and chronic pain, the analgesic efficacy of KRM-II-81 was comparable to or greater than commonly used analgesics. At the same time, KRM-II-81 did not display side effects such as sedation and motor impairment, but even more importantly, it did not produce tolerance, dependence, respiratory depression or behavioral changes indicative of abuse liability, which are produced by opioid narcotics and are at the heart of the opioid epidemic.

AMPAkines. Through an extensive translational research effort from the cellular level through Phase 2 clinical trials, the Company has developed a family of novel, low impact AMPAkines, including CX717, CX1739 and CX1942 that may have clinical application in the treatment of CNS-driven neurobehavioral and cognitive disorders, spinal cord injury, neurological diseases, and certain orphan indications. Our lead clinical compounds, CX717 and CX1739, have successfully completed multiple Phase 1 safety trials. Both compounds have also completed Phase 2 proof of concept trials demonstrating target engagement, by antagonizing the ability of opioids to induce respiratory depression.

AMPAkines have demonstrated positive activity in animal models of ADHD, results that have been extended translationally into statistically significant improvement of symptoms observed in a Phase 2 human clinical trial of CX717 in adults with ADHD. Statistically significant therapeutic effects were observed within one week. We believe AMPAkines may represent a novel, non-stimulant treatment for ADHD with a more rapid onset of action than alternative non stimulants, such as Straterra® (atomoxetine), and without the drawbacks of amphetamine-type stimulants.

In a series of important studies funded by grants from the National Institutes of Health and published in a number of peer reviewed articles, Dr. David Fuller (University of Florida), a long-time RespireRx collaborator, has demonstrated the ability of CX1739 and CX717, the Company's lead AMPAkines, to improve motor nerve activity and muscle function in animal models of spinal cord injury (SCI).

Additional information about RespireRx and the matters discussed herein can be obtained on the Company's web-site at www.RespireRx.com or in the Company's filings with the Securities and Exchange Commission at www.sec.gov.

Not a Securities Offering or Solicitation

This communication shall not constitute an offer to sell or the solicitation of an offer to buy any securities, nor shall there be any sales of securities in any jurisdiction in which such offer, solicitation or sale of securities would be unlawful before registration or qualification under the laws of such jurisdiction.

Cautionary Note Regarding Forward-Looking Statements

This press release contains certain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the "Securities Act") and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and the Company intends that such forward-looking statements be subject to the safe harbor created thereby. These might include statements regarding the Company's future plans, targets, estimates, assumptions, financial position, business strategy and other plans and objectives for future operations, and assumptions and predictions about research and development efforts, including, but not limited to, preclinical and clinical research design, execution, timing, costs and results, future product demand, supply, manufacturing, costs, marketing and pricing factors.

In some cases, forward-looking statements may be identified by words including "assumes," "could," "ongoing," "potential," "predicts," "projects," "should," "will," "would," "anticipates," "believes," "intends," "estimates," "expects," "plans," "contemplates," "targets," "continues," "budgets," "may," or the negative of these terms or other comparable terminology, although not all forward-looking statements contain these words, and such statements may include, but are not limited to, statements regarding (i) future research plans, expenditures and results, (ii) potential collaborative arrangements, (iii) the potential utility of the Company's products candidates, (iv) reorganization plans, and (v) the need for, and availability of, additional financing. Forward-looking statements are based on information available at the time the statements are made and involve known and unknown risks, uncertainties and other factors that may cause our results, levels of activity, performance or achievements to be materially different from the information expressed or implied by the forward-looking statements in this press release.

These factors include but are not limited to, regulatory policies or changes thereto, available cash, research and development results, issuance of patents, competition from other similar businesses, interest of third parties in collaborations with us, and market and general economic factors, and other risk factors disclosed in "Item 1A. Risk Factors" in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2020, as filed with the SEC on April 15, 2021 (the "2020 Form 10-K").

You should read these risk factors and the other cautionary statements made in the Company's filings as being applicable to all related forward-looking statements wherever they appear in this press release. We cannot assure you that the forward-looking statements in this press release will prove to be accurate and therefore prospective investors, as well as potential collaborators and other potential stakeholders, are encouraged not to place undue reliance on forward-looking statements. You should read this press release completely. Other than as required by law, we undertake no obligation to update or revise these forward-looking statements, even though our situation may change in the future.

We caution investors, as well as potential collaborators and other potential stakeholders, not to place undue reliance on any forward-looking statement that speaks only as of the date made and to recognize that forward-looking statements are predictions of future results, which may not occur as anticipated. Actual results could differ materially from those anticipated in the forward-looking statements and from historical results, due to the risks and uncertainties described in the 2020 Form 10-K and in this press release, as well as others that we may consider immaterial or do not anticipate at this time. These forward-looking statements are based on assumptions regarding the Company's business and technology, which involve judgments with respect to, among other things, future scientific, economic, regulatory and competitive conditions, collaborations with third parties, and future business decisions, all of which are difficult or impossible to predict accurately and many of which are beyond the Company's control. Although we believe that the expectations reflected in our forward-looking statements are reasonable, we do not know whether our expectations will prove correct. Our expectations reflected in our forward-looking statements can be affected by inaccurate assumptions that we might make or by known or unknown risks and uncertainties, including those described in the 2020 Form 10-K and in this press release. These risks and uncertainties are not exclusive and further information concerning us and our business, including factors that potentially could materially affect our financial results or condition, may emerge from time to time.

For more information about the risks and uncertainties the Company faces, see "Item 1A. Risk Factors" in our 2020 Form 10-K. Forward-looking statements speak only as of the date they are made. The Company does not undertake and specifically declines any obligation to update any forward-looking statements or to publicly announce the results of any revisions to any statements to reflect new information or future events or developments. We advise investors, as well as potential collaborators and other potential stakeholders, to consult any further disclosures we may make on related subjects in our annual reports on Form 10-K and other reports that we file with or furnish to the SEC.

Company Contact:

Jeff Margolis
Senior Vice President, Chief Financial Officer, Treasurer and Secretary
Telephone: (917) 834-7206
E-mail: jmargolis@respirerx.com

RespireRx Pharmaceuticals Inc.
126 Valley Road,
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www.respirerx.com

Exhibit 99.2

RespireRx Pharmaceuticals Inc

OTCQB: RSPI

LIFE SCIENCES INVESTOR VIRTUAL CONFERENCE

December 2021

CAUTIONARY NOTES

RespireRx Pharmaceuticals Inc

FORWARD LOOKING STATEMENTS

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For more information about the risks and uncertainties the Company faces, "Item 1A. Risk Factors" in our 2020 Form 10-K and other reports filed or furnished with the SEC from time-to-time. Forward-looking statements speak only as of the date they are made. The Company does not undertake and specifically declines any obligation to update any forward-looking statements or to publicly announce the results of any revisions to any statements to reflect new information or future events or developments. You should consult any further disclosures we may make on related subjects in our annual reports on Form 10-K and other reports that we file with or furnish to the SEC.

CAUTIONARY NOTES (cont'd)

RespireRx Pharmaceuticals Inc

NOT A SECURITIES OFFERING

This presentation is being provided for informational purposes only. This presentation does not constitute an offer to sell, a solicitation of an offer to buy, or a recommendation of any security or any other product or service by RespireRx Pharmaceuticals Inc. (the "Company") or any other third party regardless of whether such security, product or service is referenced in this presentation. Furthermore, nothing in this presentation is intended to provide tax, legal, or investment advice and nothing in this presentation should be construed as a recommendation to buy, sell, or hold any investment or security or to engage in any investment strategy or transaction. We do not represent that the securities, product development opportunities or strategies, or any other features of the Company discussed in this presentation are suitable for any particular investor, collaborator or other stakeholder.

RespireRx: Capital Structure and Market Metrics

RespireRx Pharmaceuticals Inc

	As of September 30, 2021 (unless indicated otherwise)
Common Stock (rounded)	90,396,000
Common Stock Equivalents of all Options and Warrants Granted (rounded)*	122,918,000
Total	213,314,000

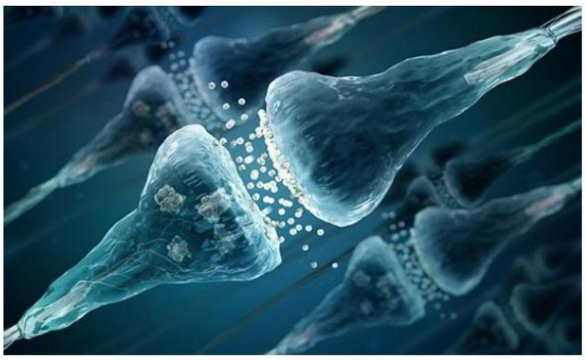
	Market Metrics at December 6, 2021
Closing price	$0.0158
Market Capitalization (rounded) - Fully diluted	$3,370,000
Market Capitalization (rounded) - Primary Basis	$1,428,000

* Does not include or account for (a) shares issuable upon conversion of additional interest accrued after September 30, 2021, (b) 5,750,000 shares issuable upon conversion of a convertible promissory note issued on October 7, 2021, or 5,750,000 shares issuable upon exercise of warrants issued on the same date in connection with such convertible promissory note, (c) 4,000,000 shares issued on November 8, 2021 upon partial conversion of $80,000 of a $112,000 convertible note, which reduced the principal amount of such note to $32,000 and reduced the number of shares into which such note is convertible by 4,000,000 shares, (d) the partial cashless exercise on November 8, 2021, of a warrant which reduced the number of warrants by 1,534,000 rounded and resulted in the issuance of 511,000 (rounded) shares of common stock or (e) the cashless exercise on November 22, 2021, of a warrant which reduced the number of warrants by 4,300,000 and resulted in the issuance of 1,433,000 (rounded) shares of common stock. As of November 26, 2021, there were 96,341,000 (rounded) shares of common stock outstanding.

RespireRx – Underlying Science

RespireRx Pharmaceuticals Inc

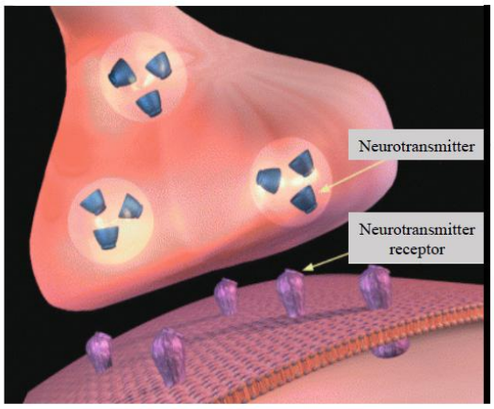
Neurotransmission



- Neurons communicate through a process of neurotransmission in which they release chemical neurotransmitters that bind to specific receptors on adjacent neurons.
- RespireRx is developing breakthrough drugs to modify neurotransmission and create advanced treatments for disorders with high unmet needs.

Different Approaches Create Different Platforms

RespireRx Pharmaceuticals Inc



Directly Acting Agonists/Antagonists

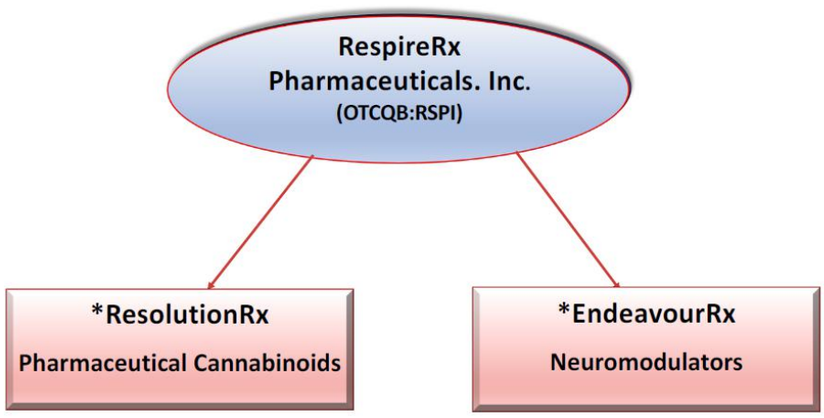
- Act directly at the neurotransmitter binding site to either stimulate (agonist) or interfere (antagonist) with the neurotransmitter receptor.
- Cannabinoids, such as Δ9-THC , are direct agonists on the brain's endocannabinoid receptors

Neuromodulators

- Allosteric Modulators do not act directly at the neurotransmitter receptor binding site and have no intrinsic activity of their own, but instead act at accessory sites that enhance (positive) or reduce the actions of neurotransmitters (negative).
- AMPAkines and GABAkines enhance the actions of the neurotransmitters glutamate and GABA at their respective AMPA glutamate and $GABA_A$ receptors

Separate Business Units for Different Platforms

RespireRx Pharmaceuticals Inc



*We are contemplating the reorganization as there are several advantages to separating these platforms formally into newly formed subsidiaries, including but not limited to optimizing their asset values through separate finance channels and making them more attractive for capital raising as well as for strategic deal making. No assurance can be provided that the reorganization will be effectuated.

Product Candidate Portfolio Summary

RespireRx Pharmaceuticals Inc

ResolutionRx

Pharmaceutical Cannabinoids

Dronabinol (Δ9-THC)

- Treatment of Obstructive Sleep Apnea (OSA)
- No approved drugs available for OSA
- Potential multi-billion $ market – estimated 30 million US patients
- Successful Phase 2B; Phase 3 ready, pending completion of new superior formulation and IND meeting
- Broad enabling patents applied for dosage and novel cannabinoid formulations applicable to other indications as well as OSA
- Clinical and commercial API supply established

EndeavourRx

Neuromodulators - Novel Brain Targeting Drugs

AMPAkines (AMPA Receptor Positive Allosteric Modulators)

- 3 Successful phase 2A trials for CX1739 and CX717
- Phase 2A ready for spinal cord injury (SCI)
- Phase 2B ready for ADHD
- Multi-kilos of clinical API on hand

GABAkines ($GABA_A$ Receptor Positive Allosteric Modulators)

- Efficacious in multiple animal models of treatment resistant epilepsy and chronic neuropathic pain
- Efficacy in excised brain slices from epileptic patients
- Lead compound is druggable and ready for pre-clinical development
- Chemical scale-up underway for IND enabling studies

RespireRx - Product Candidate Development Status

RespireRx Pharmaceuticals Inc

	Preclinical	Phase 1	Phase 2	Phase 3
ResolutionRx - Cannabinoids				
Dronabinol – OSA	→	→	→	
Dronabinol Formulation	→			
EndeavourRx - Neuromodulators				
AMPAkines				
CX717 - ADHD	→	→	→	
CX1739 - Spinal Cord Injury	→	→		
CX1942 –follow-up compound	→			
GABAkines				
KRM-II-81 – Epilepsy/Pain	→			

The information above reflects development status only, not current activity. The Company does not have any currently active Phase 1 or Phase 2 trials at this time.

Intellectual Property

RespireRx Pharmaceuticals Inc

ResolutionRx

Dronabinol (Δ9-THC)

- License to issued method-of-use patent in the US, UK and Germany for the use of dronabinol for treating OSA (expires 2025 in U.S.)
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- Longevity of broader cannabinoid patent claims anticipated through 2031, extending to 2041

EndeavourRx

AMPAkines

- Broad family of patents
- Patent longevity: composition and process patents expire in 2028/9 with new patents and patent extensions anticipated through March 2037

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Global Market Opportunities

RespireRx Pharmaceuticals Inc

ResolutionRx

Dronabinol (Δ9-THC)

Obstructive Sleep Apnea (OSA):

- Potential $ multi-billion market with no approved drugs available
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EndeavourRx

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SCI (Spinal Cord Injury):

- Estimated 288,000 patients in US; $ multi-100 million market

ADHD (Attention Deficit Hyperactivity Disorder):

- $ multi-billion market, dominated by habit-forming scheduled drugs

GABAkines

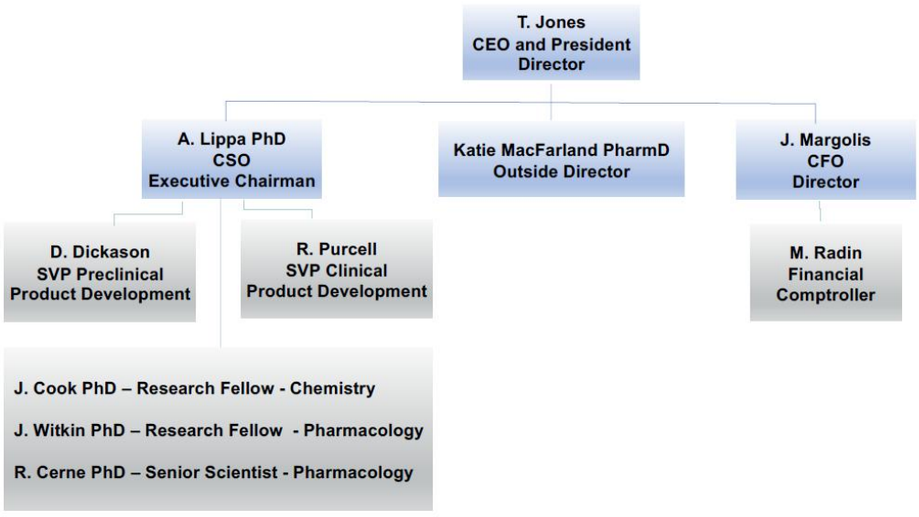
Epilepsy:

- $ multi-billion market; patients become resistant to existing therapies that produce multiple side effects, some debilitating

Chronic Pain:

- $ multi-billion market, dominated by controlled drugs, including opioids

RespireRx - Organizational Structure



Planned Short-Term Milestones

RespireRx Pharmaceuticals Inc

ResolutionRx

Dronabinol (∆9-THC)

- PK studies with new formulation
- Patent filings
- Pre-IND meeting with FDA
- Phase 3 design completion

EndeavourRx

AMPAkines

- Initiate SCI phase 2A studies
- Patent filings

GABAkines

- Complete pre-clinical development of lead compound
- Commence Phase 1 studies
- Broaden patent portfolio
- Secure grant funding

The above reflects our planned, by is dependent upon adequate financing which can not be assured. We may not achieve these milestones in the near term or ever, even if financing is available.

Corporate Summary

RespireRx Pharmaceuticals Inc

- ✓ **Highly desirable assets – advancing clinical programs and patent estate**
- ✓ **Diverse portfolio of novel products across multiple therapeutic categories and indications**
- ✓ **Broad flexibility in identifying unique investment structures**
- ✓ **Strategic partners afforded the opportunity to share in the financial growth from early stage clinical to commercialization**
- ✓ **Highly experienced management team and Board of Directors**
- ✓ **Exemplary regulatory and financial compliance history with government agencies**
- ✓ **Key clinical supply chains established**

An investment in the Company is subject to significant risks. For more information about the risks and uncertainties the Company faces, see "Item 1A. Risk Factors" in our recent annual report on Form 10-K as of December 31, 2020. You should also consult any subsequent disclosures we have made or may make in the filings we make with the SEC.

RespireRx Pharmaceuticals Inc

OTCQB: RSPI

Contacts:

Tim Jones, President & CEO
tjones@respirerx.com
856-278-8199

Jeff Margolis, CFO
jmargolis@respirerx.com
917-834-7206

Exhibit 99.3

RespireRx Pharmaceuticals Inc

OTCQB: RSPI

BIOTECH SHOWCASE 2022 PRESENTATION

January 2022

CAUTIONARY NOTES

RespireRx Pharmaceuticals Inc

FORWARD LOOKING STATEMENTS

This presentation contains certain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the "Securities Act") and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and the Company intends that such forward-looking statements be subject to the safe harbor created thereby. These might include statements regarding the Company's future plans, targets, estimates, assumptions, financial position, business strategy and other plans and objectives for future operations, and assumptions and predictions about research and development efforts, including, but not limited to, preclinical and clinical research design, execution, timing, costs and results, future product demand, supply, manufacturing, costs, marketing and pricing factors.

In some cases, forward-looking statements may be identified by words including "assumes," "could," "ongoing," "potential," "predicts," "projects," "should," "will," "would," "anticipates," "believes," "intends," "estimates," "expects," "plans," "contemplates," "targets," "continues," "budgets," "may," or the negative of these terms or other comparable terminology, although not all forward-looking statements contain these words, and such statements may include, but are not limited to, statements regarding (i) future research plans, expenditures and results, (ii) potential collaborative arrangements, (iii) the potential utility of the Company's products candidates, (iv) reorganization plans, and (v) the need for, and availability of, additional financing. Forward-looking statements are based on information available at the time the statements are made and involve known and unknown risks, uncertainties and other factors that may cause our results, levels of activity, performance or achievements to be materially different from the information expressed or implied by the forward-looking statements in this presentation.

These factors include but are not limited to, regulatory policies or changes thereto, available cash, research and development results, issuance of patents, competition from other similar businesses, interest of third parties in collaborations with us, and market and general economic factors, and other risk factors disclosed in "Item 1A. Risk Factors" in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2020, as filed with the SEC on April 15, 2021 (the "2020 Form 10-K").

You should read these risk factors and the other cautionary statements made in the Company's filings as being applicable to all related forward-looking statements wherever they appear in this presentation. We cannot assure you that the forward-looking statements in this presentation will prove to be accurate and therefore prospective investors, as well as potential collaborators and other potential stakeholders are encouraged not to place undue reliance on forward-looking statements. You should read this presentation completely. Other than as required by law, we undertake no obligation to update or revise these forward-looking statements, even though our situation may change in the future.

We caution investors, as well as potential collaborators and other potential stakeholders not to place undue reliance on any forward-looking statement that speaks only as of the date made and to recognize that forward-looking statements are predictions of future results, which may not occur as anticipated. Actual results could differ materially from those anticipated in the forward-looking statements and from historical results, due to the risks and uncertainties described in the 2020 Form 10-K and in this presentation, as well as others that we may consider immaterial or do not anticipate at this time. These forward-looking statements are based on assumptions regarding the Company's business and technology, which involve judgments with respect to, among other things, future scientific, economic, regulatory and competitive conditions, collaborations with third parties, and future business decisions, all of which are difficult or impossible to predict accurately and many of which are beyond the Company's control. Although we believe that the expectations reflected in our forward-looking statements are reasonable, we do not know whether our expectations will prove correct. Our expectations reflected in our forward-looking statements can be affected by inaccurate assumptions that we might make or by known or unknown risks and uncertainties, including those described in the 2020 Form 10-K and in this presentation. These risks and uncertainties are not exclusive and further information concerning us and our business, including factors that potentially could materially affect our financial results or condition, may emerge from time to time.

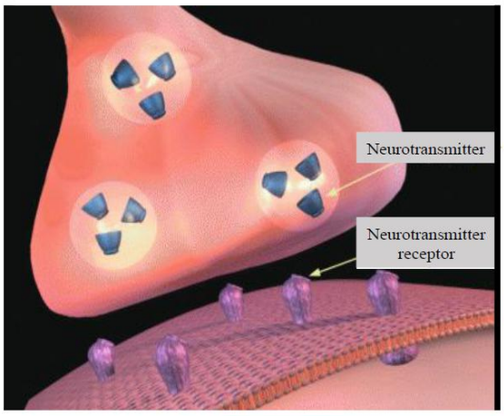
For more information about the risks and uncertainties the Company faces, "Item 1A. Risk Factors" in our 2020 Form 10-K. Forward-looking statements speak only as of the date they are made. The Company does not undertake and specifically declines any obligation to update any forward-looking statements or to publicly announce the results of any revisions to any statements to reflect new information or future events or developments. We advise investors, as well as potential collaborators and other potential stakeholders to consult any further disclosures we may make on related subject in our annual reports on Form 10-K and other reports that we file with or furnish to the SEC.

Neurotransmission

- Neurons communicate through a process of neurotransmission in which they release chemical neurotransmitters that bind to specific receptors on adjacent neurons.
- RespireRx is developing breakthrough drugs to modify neurotransmission and create advanced treatments for disorders with high unmet needs.

Different Approaches Create Different Platforms

RespireRx Pharmaceuticals Inc



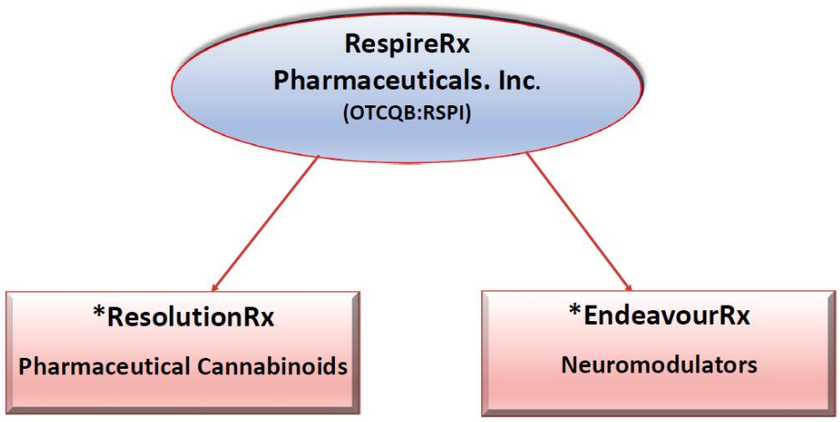
Directly Acting Agonists/Antagonists

- Act directly at the neurotransmitter binding site to either stimulate (agonist) or interfere (antagonist) with the neurotransmitter receptor.
- Cannabinoids, such as Δ9-THC , are direct agonists on the brain's endocannabinoid receptors

Neuromodulators

- Allosteric Modulators do not act directly at the neurotransmitter receptor binding site and have no intrinsic activity of their own, but instead act at accessory sites that enhance (positive) or reduce the actions of neurotransmitters (negative).
- AMPAkines and GABAkines enhance the actions of the neurotransmitters glutamate and GABA at their respective AMPA glutamate and $GABA_A$ receptors

Separate Business Units for Different Platforms



*We are contemplating the reorganization as there are several advantages to separating these platforms formally into newly formed subsidiaries, including but not limited to optimizing their asset values through separate finance channels and making them more attractive for capital raising as well as for strategic deal making. No assurance can be provided that the reorganization will be effectuated.

Product Portfolio Summary

RespireRx Pharmaceuticals Inc

EndeavourRx

Neuromodulators - Novel Brain Targeting Drugs

AMPAkines (AMPA Receptor Positive Allosteric Modulators)

- 3 Successful phase 2A trials for CX1739 and CX717
- Phase 2A ready for spinal cord injury (SCI)
- Phase 2B ready for ADHD
- Multi-kilos of clinical API on hand

GABAkines ($GABA_A$ Receptor Positive Allosteric Modulators)

- Efficacious in multiple animal models of treatment resistant epilepsy and chronic neuropathic pain
- Efficacy in excised brain slices from epileptic patients
- Lead compound is druggable and ready for pre-clinical development
- Chemical scale-up underway for IND enabling studies

ResolutionRx

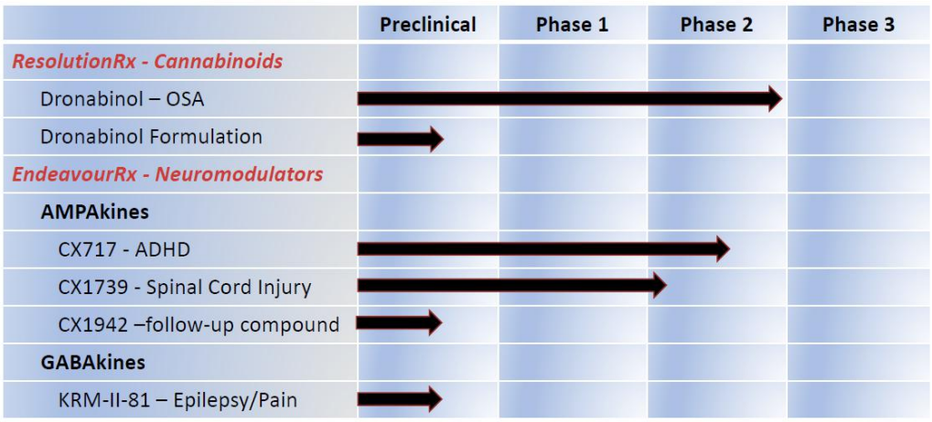
Pharmaceutical Cannabinoids

Dronabinol (Δ9-THC)

- Treatment of Obstructive Sleep Apnea (OSA)
- No approved drugs available for OSA
- Potential multi-billion $ market – estimated 30 million US patients
- Successful Phase 2B; Phase 3 ready, pending completion of new superior formulation and IND meeting
- Broad enabling patents applied for dosage and novel cannabinoid formulations applicable to other indications as well as OSA
- Clinical and commercial API supply established

RespireRx - Product Development Status

RespireRx Pharmaceuticals Inc



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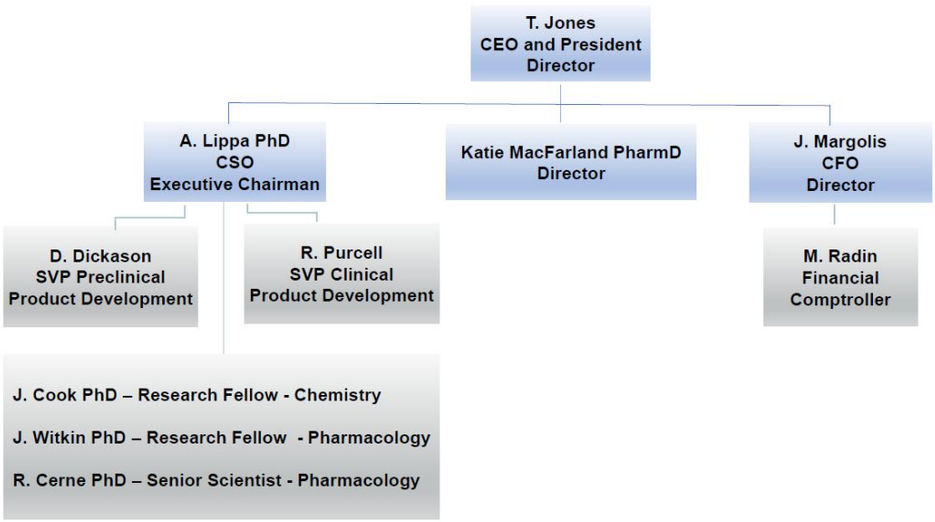
RespireRx - Organizational Structure



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- Pre-IND meeting with FDA
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RespireRx Pharmaceuticals Inc

OTCQB: RSPI

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