RespireRx Pharmaceuticals Inc.

Appoints James Sapirstein as Executive Vice Chairman of the Board of Directors

Glen Rock, N.J., January 3, 2019 /Globe Newswire – RespireRx Pharmaceuticals Inc. (OTCQB: RSPI) ("RespireRx" or the "Company"), a clinical stage pharmaceutical company, focused on the development of medicines that promote neuronal signaling in diseases and disorders of neuronal dysfunction, is pleased to announce the promotion of James Sapirstein to Executive Vice Chairman of the Board of Directors effective December 28, 2018. Mr. Sapirstein, who has served as a member of the Board of Directors since 2014, expands his role within RespireRx to assist with business development and fundraising activities to advance the development of the company's pipeline of neuromodulators with a focus on sleep apnea, as well as neurologic and psychiatric disorders.

Mr. Sapirstein is a highly-regarded pharmaceutical industry executive with over 35 years of success in building companies and leading the commercial launch of nearly two dozen prescription drugs in the fields of CNS, infectious disease, and cancer. He has worked at major pharmaceutical companies, Bristol-Myers Squibb, Hoffmann-LaRoche and Eli Lilly, and led commercial teams for biotech companies such as Gilead Sciences and Serono Laboratories. In recent years, Mr. Sapirstein has been the founding CEO of early-stage biotechnology companies Tobira Therapeutics (NASDAQ:TBRA), Alliqua Therapeutics (NASDAQ:ALQA) and most recently, ContraVir Pharmaceuticals (NASDAQ:CTRV), where he defined and executed corporate strategy, raised significant capital, advanced drug development programs, and built shareholder value.

"Throughout his time on our board of directors, James has provided us with vision and guidance to position RespireRx as a leader in the treatment of neuronal signaling disorders that have few therapeutic options and large market opportunities," stated Arnold Lippa, PhD, RespireRx Executive Chairman, Interim President, Interim Chief Executive Officer and Chief Scientific Officer. "As we plan to initiate our Phase 3 development program for dronabinol for the treatment of obstructive sleep apnea (OSA), and plan the relaunch of our Ampakine® development program with clinical trials planned in ADHD and spinal cord injury, James will be instrumental in promoting our financing and partnering efforts."

Mr. Sapirstein offered his views on RespireRx, "This is a great time for RespireRx, as the company has made significant strides in reorganizing its corporate structure as well as focusing its development efforts on three areas with significant medical needs, including OSA, ADHD, and spinal cord injury. RespireRx believes that the OSA program is Phase 3 ready, and the Phase 2 Ampakine® trials for spinal cord injury are in the process of getting ready to proceed. This company has great potential, and I look forward to working more closely with management to build a solid foundation for the future as we unlock the value of our portfolio."

In addition to serving on the RespireRx Board of Directors, Mr. Sapirstein is the Chairman of BioNJ and also serves on the BIO board. He received an MBA from Fairleigh Dickinson University in 1997, and a BS (Pharmacy) from Rutgers University in 1984.

About RespireRx Pharmaceuticals Inc.

RespireRx Pharmaceuticals Inc. is a leader in the development of medicines for respiratory disorders and CNS indications, with a focus on obstructive sleep apnea, attention deficit hyperactivity disorder (ADHD),

spinal cord injury, other neurological conditions and drug-induced respiratory depression. 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.

Cannabinoids. RespireRx is developing dronabinol, a synthetic derivative of a 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.

RespireRx believes, pending the outcome of an intended meeting with the FDA, that it will be able to commence a Phase 3 clinical study for the treatment of OSA with dronabinol. The Company further believes that it would only require approval by the FDA of a 505(b)(2) new drug application ("NDA"), an efficient regulatory pathway.

RespireRx believes that the most direct route to commercialization is to proceed directly to a Phase 3 pivotal trial using the currently available dronabinol formulation (2.5, 5 and 10 mg gel caps) and to then commercialize a RespireRx branded dronabinol capsule ("RBDC").

RespireRx also believes that there are numerous opportunities for reformulation of dronabinol to produce a second-generation proprietary, branded product for the treatment of OSA with an improved profile. Therefore, simultaneous with the development of the RBDC, RespireRx plans to develop a proprietary dronabinol formulation to optimize the dose and duration of action for treating OSA.

Ampakines. The second platform of proprietary medicines being developed by RespireRx are ampakines, which act to enhance the actions of the excitatory neurotransmitter glutamate at AMPA glutamate receptors. Several ampakines, in both oral and injectable forms, are being developed by the Company for the treatment of a variety of breathing and CNS disorders. In clinical studies of respiratory function, select ampakines have shown preliminary efficacy in central sleep apnea and in the control of respiratory depression produced by opioids, without altering the opioid analgesic effects. In animal models of certain orphan disorders, such as Pompe Disease, Rett's Syndrome and perinatal respiratory distress, certain ampakines have been shown to improve breathing function.

Ampakines also have shown potential as possible therapeutic agents for the treatment of certain neuropsychiatric and neurological disorders. 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 clinical trial of CX717 in adults with ADHD. At present, the major pharmacotherapies available for ADHD are made up of two types of drugs. Stimulants, such as amphetamine, rapidly produce robust effects, but suffer from side effects typical of stimulants, including tolerance, dependence, withdrawal and abuse. For these reasons, stimulants are scheduled by the FDA. Non-stimulants, such as Straterra® (atomoxetine) tend to be less effective than stimulants, with a much longer (approximately 4 – 8 week) latency to onset of action. In a number of animal and human studies, CX717 and other ampakines did not display any stimulant properties typically associated with drugs like amphetamine. In the Phase 2 ADHD clinical trial, statistically significant therapeutic effects were observed within one week. Therefore, we believe ampakines may represent a novel, non-stimulant treatment for ADHD with a more rapid onset of action than alternative non-stimulant treatment options.

RespireRx owns certain composition of matter and use patents and patent applications with respect to ampakines CX1739, CX717 and other ampakines. The Company has received notice from the University of Alberta that purports to terminate the Company's license in respect of patents associated with respiratory applications of ampakines. RespireRx has been in contact with the University of Alberta and

anticipates engaging in a dispute resolution process with respect to its license with the University of Alberta in respect to use patents associated only with respiratory applications of ampakines.

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

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 and Section 21E of the Securities Exchange Act of 1934 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 "anticipates," "believes," "intends," "estimates," "expects," "plans," "contemplates," "targets," "continues," budgets," "may," and similar expressions 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 proposed products, (iv) reorganization plans, (v) the clinical development, regulatory review and commercialization process, and (vi) the need for, and availability of, additional financing.

The forward-looking statements included herein are based on current expectations that involve a number of risks and uncertainties. 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 the Company believes that the assumptions underlying the forward-looking statements are reasonable, actual results may differ materially from those set forth in the forward-looking statements. In light of the significant uncertainties inherent in the forward-looking information included herein, the inclusion of such information should not be regarded as a representation by the Company or any other person that the Company's objectives or plans will be achieved.

Factors that could cause or contribute to such differences include, but are not limited to, regulatory policies or changes thereto, available cash, research and development results, competition from other similar businesses, interest of third parties in collaborations with us, and market and general economic factors. This discussion should be read in conjunction with the condensed consolidated financial statements (unaudited) and notes thereto included in Item 1 of the Company's Quarterly Report on Form 10-Q and the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2017, including the section entitled "Item 1A. Risk Factors." The Company does not intend to update or revise any forward-looking statements to reflect new information, future events or otherwise.

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