



**RespireRx Pharmaceuticals Inc.
Announces Publication of Ampakine Data:**

**Effects of Chronic Systemic Low-impact Ampakine Treatment on
Neurotrophin Expression in Rat Brain**

Glen Rock, N.J., July 25, 2018 /Globe Newswire – RespireRx Pharmaceuticals Inc. (OTCQB: RSPI) ("RespireRx" or the "Company"), is pleased to announce that an article describing the company's translational research on the ability of its proprietary ampakines to stimulate neurotrophin expression has been published in *Biomedical Pharmacotherapy* (Biomed Pharmacother. 2018 Jun 6;105:540-544. doi: 10.1016/j.biopha.2018.06.008.). The paper demonstrates that low-impact ampakines, when administered to animals at therapeutically relevant doses for two weeks, enhance expression of the neurotrophic factors, brain derived neurotrophic factor (BDNF) and nerve growth factor (NGF). These neurotrophic factors promote neuronal growth, plasticity and survival, functions essential for normal brain functioning.

Ampakines are a class of molecules that enhance the actions of glutamate, the major excitatory neurotransmitter in the brain, at its AMPA receptors. Prior to this article, it was believed that the induction of neurotrophic factors was exclusively produced by high impact ampakines, which also produced undesirable side effects such as seizures. In the current study, the Company demonstrated increased levels of brain BDNF and NGF at doses of representative low impact ampakines that are active in behavioral measures of cognition. Low impact ampakines do not display the side effects associated with high impact ampakines. The results demonstrate that low impact ampakines safely induce differential increases in neurotrophins across several brain regions, providing mechanistic and translational evidence for their activity not only in memory and cognition, but also in a variety of central nervous system disorders, including ADHD and spinal cord injury. The paper can be downloaded at: <https://authors.elsevier.com/c/1XAsf2hIRJHjmx>

"These results are important because novel means of up-regulating neurotrophin levels may be of use in the treatment of a number of neurodegenerative and neuropsychiatric diseases, as well as in spinal cord injury," stated Arnold Lippa, PhD, RespireRx Executive Chairman and Chief Scientific Officer and an author on the paper. "These data highlight the ability of low impact ampakines, similar to those presently undergoing clinical development, to elevate neurotrophin expression in different brain regions that impact memory, behavior, and neuronal function. Low impact ampakines were not previously believed to increase neurotrophins, but with chronic administration at clinically relevant doses, we have demonstrated a mechanism underlying the therapeutic potential of these compounds for improving neuronal function without the seizure potential that limited development of the high impact compounds. These and other recently published data provide the impetus for RespireRx to advance our compounds for the treatment of neurologic and neuropsychiatric disorders, particularly ADHD, where we have positive clinical data."

Richard Purcell, Senior Vice President of Research & Development at RespireRx, and an author on the paper continued, "The present findings are encouraging for our ampakine clinical development program. Our preclinical results have demonstrated significant improvements in neuronal signaling after spinal cord injury with low impact ampakine treatment, perhaps facilitated by these increases in BDNF and NGF. We are working with academic collaborators on these research efforts, and look forward to translating these promising results into the clinic for the treatment of spinal cord injury."

About RespireRx Pharmaceuticals Inc.

RespireRx Pharmaceuticals Inc. is a leader in the development of medicines for respiratory disorders, with a focus on sleep apnea, as well as neurologic and psychiatric disorders. 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.

RespireRx has a pipeline of medicines in Phase 2 clinical development focused on pharmaceutical treatments for a variety of breathing and CNS disorders. Clinical development in the area of sleep apnea, spinal cord injury, and ADHD has created opportunities for the development and commercialization of the Company's compounds.

Ampakines. One 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 CNS disorders. A Phase 2 clinical trial of the ampakine CX717 demonstrated efficacy in adult attention deficit hyperactivity disorder (ADHD). 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 orphan disorders, such as Pompe Disease, spinal cord injury and perinatal respiratory distress, it has been demonstrated that certain ampakines improve motor function and breathing. The Company's compounds belong to a new class that does not display the undesirable side effects previously reported for other ampakines.

Cannabinoids. The other platform being developed by RespireRx is the class of compounds known as cannabinoids, including dronabinol. Under a license agreement with the University of Illinois, the Company has rights to patents claiming the use of cannabinoids for the treatment of sleep-related breathing disorders. This program is Phase 3 ready.

Additional information about the Company 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.

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.

Company Contact:

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