

Ampakines®

RespireRx is developing a class of proprietary CNS-acting compounds known as ampakines, which are allosteric modulators of the alpha-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid (AMPA) receptor. Ampakines enhance the excitatory actions of the neurotransmitter, glutamate at the AMPA receptor complex, which mediates most excitatory transmission in the CNS. Through an extensive translational research effort from the neuronal level through Phase 2 clinical trials, the company has developed a family of “Low Impact” Ampakines, including CX717, CX1739 and CX1942 that have clinical application in the treatment of CNS-driven respiratory disorders, behavioral disorders, spinal cord injury, neurological diseases, and orphan indications.

CX1739 for Opioid Induced Respiratory Depression (OIRD)

In confirmation of previous clinical trials with CX717, CX1739 has been shown in a recent Phase 2a study to antagonize the respiratory depression caused by remifentanyl, a very potent opioid, without blocking its analgesic effects. These study results confirm target engagement of AMPA receptors and provide proof-of-concept clinical data to support the development of CX1739 for the treatment of various manifestations of OIRD, including opioid over-dose, central sleep apnea (CSA) and the management of post-operative pain. OIRD often presents as CSA, which is caused by chronic opioid use, with an estimated prevalence of 5 – 6 MM patients. With no approved drugs or devices to treat opioid induced CSA, this market is attractive for the continued development of CX1739. RespireRx is prepared to initiate Phase 2 protocols for OIRD and CSA.

CX717 & CX1739 in Spinal Cord Injury (SCI)

CX717 has been shown to improve breathing and promote motor function in a rat model of SCI, for which there is significant need for additional treatments to improve respiratory & motor function. Both CX717 and CX1739 have potential utility in the treatment and management of SCI to enhance respiration, potentiate motor function for rehabilitation, and improve the quality of life for SCI patients. RespireRx is working with researchers at the University of Florida, University of Miami and the Detroit VA to prepare a Phase 2 protocol in SCI.

CX717 in Attention Deficit Hyperactive Disorder (ADHD)

RespireRx has completed a Phase 2 clinical trial with CX717 in ADHD, with statistically significant positive results. CX717 represents a breakthrough opportunity to develop a non-stimulating therapeutic for ADHD. RespireRx is working with researchers at NYU Langone Medical Center to continue the CX717 ADHD development program.

Orphan Opportunities

Early stage research on ampakines has demonstrated that CX717 and CX1739 can improve respiratory function in animal models of orphan disorders, such as Pompe Disease, Autism Spectrum Disorders including Fragile X Syndrome, and perinatal respiratory distress. The company is actively working with experts and noted centers of excellence for the treatment of these rare disorders to bring new therapies to the clinic.

BACKGROUND

RespireRx is developing a pipeline of new drug products based on our broad patent portfolios for two drug platforms: the cannabinoids, including dronabinol (Δ^9 -THC), and the ampakines, which allosterically and positively modulate AMPA-type glutamate receptors to promote neuronal function.

We are a leader in the development of drugs for respiratory disorders caused by disruptions of neural signaling, with a focus on sleep apneas, opioid-induced respiratory depression, and other CNS-driven breathing disorders. Additionally, we are developing new drugs and formulations that address the widespread problem of opioid overdose.

RespireRx has an extensive patent portfolio, with intellectual property for composition of matter and use across multiple indications.

MANAGEMENT TEAM

James Manuso, PhD, CEO Vice Chairman
Arnold Lippa, PhD, CSO Exec Chairman
Jeff Margolis, CFO, Senior VP Finance
Richard Purcell, Senior VP R&D

OFFICE LOCATION

126 Valley Rd.
Glen Rock, NJ 07452

AMPAKINE PIPELINE:

CX717 - Phase II, ADHD, OIRD, SCI
CX1739 - Phase II, OIRD, CSA, SCI
CX1942 - Pre-clinical injectable

INTELLECTUAL PROPERTY

Extensive IP Portfolio
Patent Extensions
Market Exclusivity
Patents Pending to 2037

Market

OTC: RSPi

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